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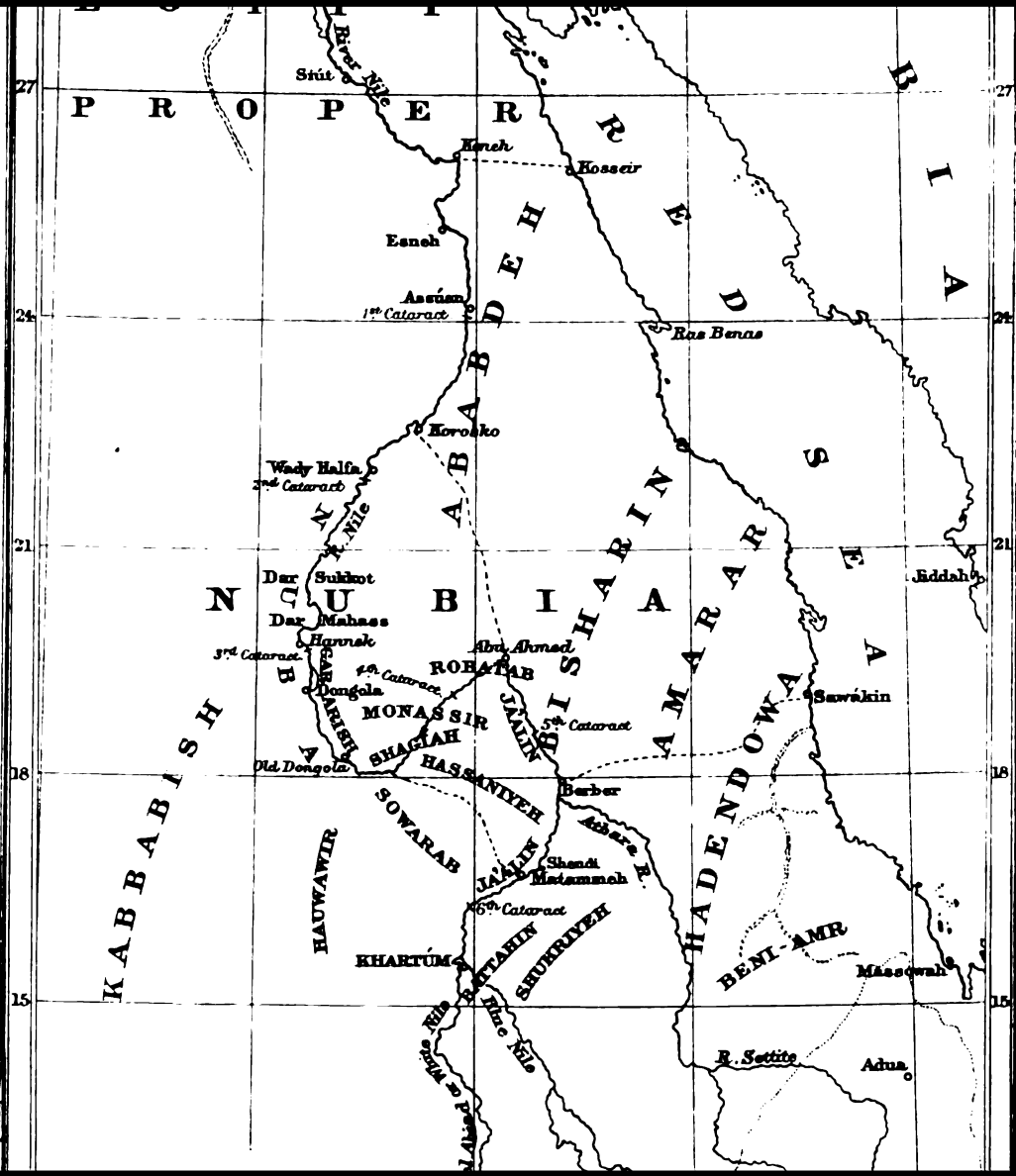

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THE

JOURNAL

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OF

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VOL. XVII.

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CORRIGENDA.

Owing to Canon Taylor's absence from England he had no opportunity of revising the proofs of his paper on "The Origin and Primitive Seat of the Aryans," in the February number of the Journal.

The following misprints should be corrected:—

Page 240, note 2, *for* "*fiuk-ta*," *read* "*fiuh-ta*."
„ 243, line 10, *for* "that directed," *read* "directed that."
„ 243, „ 41, *for* "man," *read* "race."
„ 245, „ 14, *for* "time," *read* "line."
„ 249, „ 12, *for* "Ayran," *read* "Aryan."
„ 251, „ 25, *for* "Aestiæi," *read* "Aestui."
„ 253, „ 8, *for* "*Kultur-wörten*," *read* "*Kultur-wörter*."
„ 253, „ 43, *for* "race," *read* "first."
„ 253, „ 44, *for* "first," *read* "race."
„ 254, „ 2, *before* "Aryan," *insert* "developed."
„ 255, „ 6, *for* "verbal," *read* "verbal root."
„ 255, „ 15, *before* "*lug*," *insert* "the root."
„ 255, „ 30, *for* "ἴ-στη-μι," *read* "ἵ-στη-μι."
„ 255, „ 43, *for* "orginated," *read* "originated."
„ 259, „ 14, *for* "*Finnische*," *read* "*Finnischen*."
„ 259, No. 1, *for* "*cock*," *read* "*crake*."
„ 259, „ 2, *for* "*hals*," *read* "*hag*."
„ 259, „ 2A, *for* "*cace*," *read* "*cacc*."
„ 259, „ 3, *for* "hestitate," *read* "hesitate."
„ 259, „ 4, *for* "*hut*," *read* "German *hut*."
„ 259, „ 4, *for* "33-34," *read* "33-44."
„ 260, „ 6, *for* "*cataya*," *read* "*çataya*;" and *for* "*kate*," *read* "*kăte*."
„ 260, „ 7, *for* "*gemo*," *read* "*canto*."
„ 260, „ 8 *for* "*cup*," *read* "*cap*."
„ 260, „ 9, *for* "κόπτω," *read* "κάμπτω."
„ 260, „ 9, *for* "Keltic *cam*, bent," *read* "Lithuanian *kampas*, crooked; Greek καμπή."
„ 260, „ 10, *for* "Lithuanian *kampas*, crooked; Greek καμπή," *read* "Keltic *cam*, bent."
„ 260, „ 10, *for* "*combe, hump, kink*;" *read* "*kem*;"
„ 260, „ 11, *for* "family race," *read* "family, race."
„ 260, „ 12, *for* "make work," *read* "make, work," and *for* "*carve*," *read* "Sanskrit *har-man*, work."
„ 260, „ 14, *for* "*coracle*," *read* "*carol*."
„ 261, „ 17, *for* "*garden, hortus*," *read* "*circus*;" and *for* "χόρτος, χορός," *read* "κυρτός, κρίκος."
„ 261, „ 18, *for* "turn," *read* "burn."
„ 261, „ 19, *for* "*call*," *read* "*calends*."
„ 261, „ 21, *for* "command," *read* "commend."
„ 261, „ 22, *for* "KAR," *read* "KAS."
„ 261, „ 23, *for* "KER," *read* "KU;" *for* "*coelam*," *read* "*coelum*;" *for* "HUH," *read* "KUH;" and *for* "*kavis*," *read* "*kavio*."
„ 262, line 6, *for* "*ken*," *read* "*kan*."
„ 262, „ 40, *for* "*taatt*," *read* "*taatto*."
„ 262, „ 45, *for* "Suomi," *read* "in Suomi;" and *for* "*pojn*," *read* "*poju*."
„ 263, „ 22, *for* "*marzcicos*," *read* "*marczios*."

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Page 263, line 32, *for* "10." *read* "10, namely,"
„ 264, „ 5, *for* "*catam*," *read* "*çatam*."
„ 265, „ 33, *after* "we have," *insert* "the Aryan and Finnic pairs."
„ 266, „ 12, *for* "girded," *read* "is girded."
„ 267, „ 1, *for* "*gaz*," *read* "*qaz*."
„ 267, „ 8, *for* "*kulla*," *read* "*kulea*."
„ 267, „ 11, *before* "*gule*," *insert* "Mongol."
„ 267, „ 27, *for* "*uruda*," *read* "*urudu*."
„ 268, „ 7, *for* "*sil-al*," *read* "*sil-at*."
„ 268, „ 13, *omit* "*salt*."
„ 268, „ 38, *for* "beast," *read* "heart."

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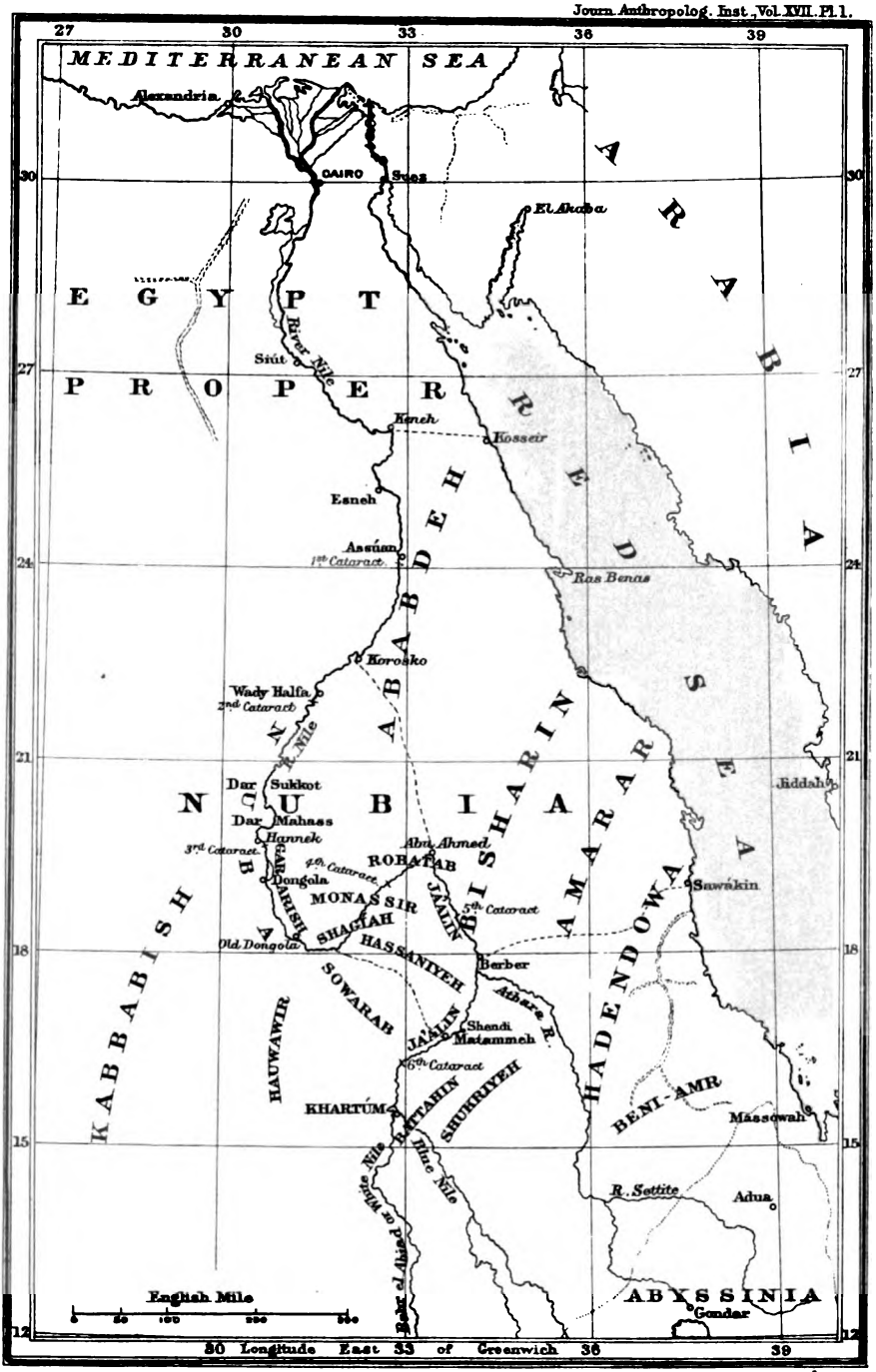

SKETCH MAP SHEWING DISTRIBUTION OF TRIBES NORTH OF KHARTÚM

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THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

FEBRUARY 8TH, 1887.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chair.*

The Minutes of the last ordinary meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Messrs. MACMILLAN AND Co.—Palæolithic Man in North-west Middlesex. By Jno. Allen Brown, F.G.S., &c.

From C. H. E. CARMICHAEL, Esq.—Report of the Royal Society of Literature, 1886.

From S. W. SILVER, Esq.—Catalogue of the York Gate Library, formed by Mr. S. W. Silver. By Edward Augustus Petherick.

From Dr. A. B. MEYER.—Publicationen aus den Königlichen Ethnographischen Museum zu Dresden. VI. Dr. M. Uhle. Holz- und Bambus-Geräthe aus Nord-West Neu Guinea (hauptsächlich gesammelt von A. B. Meyer) mit besonderer Berücksichtigung der Ornamentik. Mit 7 Tafeln, Lichtdruck.

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From the AUTHOR.—Notes on the Evidence bearing upon British Ethnology. By T. V. Holmes, F.G.S., &c.
—— Preliminary Note of an Analysis of the Mexican Codices and Graven Inscriptions. By Zelia Nuttall.
—— Di alcune accette di pietra, specialmente di Giadaite, del R. Museo di Antichità in Parma. By Dr. A. B. Meyer.
—— Intorno a quattro accette di pietra che si conservano nel museo civico di Rovereto. Memoria di A. B. Meyer.
From the ACADEMY.—Atti della Reale Accademia dei Lincei. Serie Quarta. Rendiconti. Vol. II. Fas. 11.
From the K.-K. AKADEMIE DER WISSENSCHAFTEN, WIEN.—Sitzungsberichte, philos.-histor. Classe. Band 110, Heft, 1, 2; Band 111, Heft 1, 2; Register, XI; Sitzungsberichte, math.-naturw. Classe. I Abthlg., 1885, Nos. 5, 6–7, 8, 9–10; 1886, No. 1–3. II Abthlg., 1885, No. 4–5, 6, 7, 8, 9, 10; 1886, No. 1–2. III Abthlg., 1885, No. 3–5, 6–7, 8–10; Almanach, 1886.
From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. No. 66.
—— Journal of the East India Association. Vol. XIX. No. 1.
From the CLUB.—Proceedings of the Berwickshire Naturalists' Club. 1885.
From the SOCIÉTÉ ARCHÉOLOGIQUE, AGRAM.—Viestnik hrvatskoga Arkeologickoga Druztva. Godina IX. Br. 1.
From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE.—Correspondenz-Blatt. 1886. Nos. 10, 11; Archiv für Anthropologie. Band XVI. Heft 4.
From the SOCIETY.—Proceedings of the Royal Society. Nos. 248, 249.
—— Proceedings of the Royal Geographical Society. 1887. February.
—— Journal of the Society of Arts. Nos. 1782–1785.
—— Journal of the Royal Asiatic Society. Vol. XVIII, Vol. XIX, Part 1.
—— Proceedings of the Society of Biblical Archæology. Vol. VIII.
—— Bulletin de la Société d'Anthropologie de Lyon. Tome IV. 1885.
—— Bulletin des Procès-Verbaux de la Société d'Emulation d'Abbeville. 1885.
From the EDITOR.—Nature. Nos. 898–901.
—— Science. Nos. 204–207.
—— American Antiquarian. Vol. IX. No. 1.
—— Photographic Times. Nos. 276–280.
—— Revue d'Anthropologie. 1887. No. 1.
—— Revue d'Ethnographie. 1886. No. 4.
—— L'Homme. Nos. 21–22.
—— Bullettino di Paletnologia Italiana. Ser. II. Tom. II. Nos. 11, 12.

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The following paper was read by the author:—

On the TRIBES *of the* NILE VALLEY, NORTH *of* KHARTÚM.

By SIR CHARLES W. WILSON, K.C.B., K.C.M.G., D.C.L., F.R.S.

[WITH PLATE I.]

IN offering the present paper to the Anthropological Institute, I must apologise for its incompleteness. I have attempted to throw some light on the tribal history and relations of the people who live in the Nile Valley north of Khartúm. The subject is one of great difficulty and obscurity from the almost entire absence of written records, and from the extraordinary way in which the races have in many cases been mixed up. It is curious, for instance, to see how completely the indigenous population has, in certain cases, lost its nationality whilst absorbing its Arab conquerors; and how Hamitic, Semitic, and Núba tribes alike claim descent from the Koreish of Mecca. My own observation was limited; I only came into personal contact with a few of the tribes; but I had to make enquiries about the others for the purposes of the Nile Expedition. These enquiries were naturally as to the political relations of the tribes, and this must account for the absence of scientific details in my paper. Active service is not favourable to scientific observation as regards ethnological questions; the disturbance of the population is too great, and the people are too excited, too frightened, and too interested to be natural. The only way to gain the confidence of natives is to live amongst them until they become accustomed to your ways, and cease to be frightened or shy. If natives once see that you know their habits, and understand and like them, you can get almost anything you like out of them. This is, perhaps, especially the case with Arabs, who are naturally great gossips, but who are at the same time extremely suspicious and believe that some ulterior motive must underlie any leading or abrupt question. As far as my observation went there is little to add to the account which Burckhardt gave of the Núba, though the country, owing to Egyptian misgovernment, has greatly changed for the worse since his visit.

The tribes of the Nile Valley north of Khartúm may conveniently be divided into three groups; the Hamitic, the Semitic, and the Núba. I propose, however, in the first place to say a few words on the Arab tribes north of Assúan, for they form as it were a group apart.

These Arabs may be called semi-nomads, for in nearly every case one portion of the tribe lives in houses or villages, whilst the other lives on the borders of the cultivated district; some of the

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tribes, however, are pure nomads. They all own allegiance to the Egyptian Government, and as long as that Government is strong they are quiet and peaceful, but directly the central authority is weakened they begin raiding each other. I append a list of these tribes, which are all pure Arab, as far as I could ascertain their names:

El Amaiem	El Elekat	El Goheineh	El Nagameh
El Atawlah	El Endarab	El Harabi	El Rewah
El Attaiyat	El Fargan	El Howatah	El Saadnah
El Awazem	El Fowaïed	El Kallahine	El Sabh
El Azaïzah	El Fazarah	El Khoweiled	El Samalús
El Bar'asah	El Gahmah	El Máazi	El Tarshan
El Beli	El Galailat	El Marshakah	El Tarhúna
El Beni Wassal	El Gawabis	El Meteirat	El Tarabine
El Do'afa	El Gawazi	El Na'am	

35 Tribes.

Before entering into any details respecting the tribes above Assúan, it is advisable to note a few historical facts which have come down to us with more or less accuracy. During the Roman period we find above the first cataract two tribes or races, the Nobatæ and the Blemmyes, who undoubtedly represent the Núba and Bíja of the present day. The Nobatæ appear to have been agricultural, the Blemmyes nomad and aggressive, and Diocletian is said to have settled colonies of the former on the Nile above Philæ, as a "buffer" between the Romans and the nomads. In 451, the two races combined in an attack on the Romans, but were badly defeated; and in 545, the Nobatæ were converted to Christianity, and their chief, Silko, who founded the Christian kingdom of Dongola, called himself "King of the Nobatæ, and of all the Ethiopians." In 20 or 21 A.H. (642): Amr (Amru) sent Ali Sarh, with 20,000 men, against the Núbas, but it was not till ten years later that he penetrated as far as Dongola, and "gave peace" from Assúan to Aloa[1] (which appears to be Sennár), imposing an annual tribute of 360 slaves on the Núba king, Koleydozo. An incident of the struggle was the attempted relief of a besieged Núba chief by a combined Núba and Bíja force, in which there was a contingent from a giant race, called El Kowad, who wore copper rings in their lower lips, and had elephants.

In 216 A.H. (832), the Moslem Governor of Assúan entered into a treaty with the Bíja chief, Kanún ibn Aziz, by which the latter engaged to protect the road to Aidhab on the Red Sea, appoint an agent for the tribe, and pay an annual tribute of 100 camels. This is the earliest record of a Government engagement with the northern section of the Bíja, now the Ababdeh.

[1] *Aloa* may be a corruption of "*El Höi*," the island, the native name of the country between the two Niles.

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In 255 A.H. (869), Abu Abderrahman, after a campaign against the Núba, passed eastwards to the mines in the Bíja country with the Rabya, Jeheyneh, and other tribes, accompanied by 6,000 camels carrying food and water. The Rabya Arabs settled in the Bíja country, married the daughters of the Bíja chiefs, and became the tribal rulers; the Bíja then supported the Rabya in their struggles with the Kahtan, Modher, and other Arab tribes. By 332 A.H. (943), the supremacy of the Rabya was complete; and the head chief, Beshír ibn Merwan ibn Ishak, of the Rabya, is said by Masúdi to have then had 3,000 Arab horsemen, and 30,000 Bíja camel-men.

In 344 A.H. (956), the king of Núba commenced a succession of attacks on Assúan, but he was invariably defeated by the Arabs. In 1067 A.D., according to Leo Africanus, Iaiaia, son of Abubekr, entered Lower Ethiopia and Nubia and founded the kingdoms of Adel and Dangali (Dongola), but if this be correct the kingdoms could only have lasted for a brief period. In 674 A.H. (1276), Daúd, king of the Núbas, attacked Aidhab, and advancing northwards burned the "sakíahs" near Assúan; this was the beginning of the final struggle; the Moslems defeated Daúd, destroyed the churches, appointed his nephew, Shekendi, Governor of Lower Nubia, and made the people pay the exemption tax. A few years later Daúd rose again, and the final extinction of the Christian Kingdom of Dongola appears to have taken place before 1317 A.D., according to the inscription on a mosque at Old Dongola. Ibn Batuta says that the king of Dongola, who he calls Ibn Kenz Oddin, became a Moslem in the time of El Melik en Nasir, but it is not clear whether he means Salaeddin, 1171–1193, or Ibn Kalaún, who was reigning when he visited Egypt.[1] In 725 A.H. (1326), Ibn Batuta went up the Nile; he travelled from Siút to Edfú with Dughaim Arabs, then crossed the river, and started on his desert journey to Aidhab, with a Bíja escort, from Adoane (El Edweh ?). At this time the Bíja appear to have been carrying on a war with the people of Barnau. In 815 A.H. (1412), the Howara Arab tribe attacked the Beni Kenz, a branch of the Rabya, then settled at Assúan, and drove them above the cataract; Macrizi mentions that they were called Barabra. In 1517, Sultan Selim conquered Egypt, and though we have no records that I know of, there is reason to believe that the advent of the Turks induced a further southward movement of the tribes. According to Burckhardt, the Gharbiyeh Arab tribe, being hard pressed by the Arab Jowabereh, asked Sultan Selim for assistance, and obtained from him several hundred Bosniac soldiers who drove the Jowabereh out of

[1] Perhaps the King of Dongola became a Moslem in 1321 A.D., when the edict forbidding Christians to ride horses, to wear a white turban, &c., was issued.

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Nubia and settled between Assúan and Say; the descendants of these men, though quite black, still call themselves Osmanli. At a more recent period, as we know, the Turkish soldiers introduced into the country by Muhammad Ali frequently married and settled down amongst the natives.

The three races Arab, Bíja, and Núba which inhabit this section of the Nile Valley, seem to have the same cluck with the tongue to deny or affirm; and they are equally superstitious, firmly believing in the efficacy of charms and amulets, and in lucky and unlucky days for commencing a journey or any of the ordinary pursuits and occupations of life. They have also, if I may so express it, the same strong religious instincts, and this has led to the formation of villages or settlements of "fekis," or fakirs, to which the men go for instruction. It is said that the enormous number of fakirs is due to their exemption from taxation, and the pleasures of an idle life, but I think it is really due to religious sentiment. The Fokara (fakirs or fekis) of the Súdan represent the learned class who can read and write; they are the letter readers and writers of the villages; write charms for lovers, and talismans for protection against harm and the evil eye, and they exorcise demons. It is this religious sentiment which has enabled the Khatimíyeh to extend their teaching so widely. The Khatimíyeh are one of the many Taríkahs or religious orders of Islam; and their head is known as the Sirr el Khatm, "Lord of perfection," or the man who has attained the highest degree of learning and piety. The Khatimíyeh are strict Sunnis and strongly opposed to all non-Koranic teaching; they play the same part in the Súdan as Senúsiism does amongst the Arabs of the country to the north and west. The object of the order is to strive after perfection in religion and to spread their tenets amongst the people; with this view mosques have been built and schools established in the villages; and nearly every young man I met who could read and write had been instructed by a member of the order. The first man to introduce the Khatimíyeh teaching in the Súdan was Muhammad Osman, an Arab of the Koreish tribe, and descendant of the Prophet; he had three sons, one of whom settled at Mecca; a second was Sidi Hassan, the father of Sidi Osman, of Kassala; and a third was Muhammad, the father of Sheikh El Merghani who lives at Cairo, and who rendered most valuable assistance to us at Sawákin. The influence of these men over many of the tribes is very great, and that influence has always been used in a most beneficial way.

Before closing this section of my paper I must briefly allude to the slave class. The number of slaves in the Súdan is enormous, and they constitute nearly one-half of the popula-

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tion; they belong to a variety of tribes, speaking different languages, so that their only medium of communication is broken Arabic; and this appears to prevent any combination which might lead to a slave rebellion. They are not unkindly treated by their masters, but for every slave who reaches Dongola at least twelve have probably died on the road, and even many of those who survive the horrors of the long marches bear the marks of the cruelty of the slave hunters. The men are employed as domestic servants, agricultural laborers, soldiers, and as small craftsmen: the women as servants and prostitutes amongst the sedentary population; amongst the nomads the female slaves frequently become the wives of their masters.

I. *Hamitic.*

To the Hamitic group belong the Ababdeh, the Bisharín, and probably the Kabbabish; these tribes form part of the Great Bíja or To-Bedawiet speaking race of which the Hadendoas, and Amarars of the Eastern Súdan are also members. Mr. Cameron has so recently read a paper on the Bíja, near Sawákin, with special reference to the two last named tribes that I will only make a few general remarks.

In the middle ages the Bíja tribes were powerful, and apparently consolidated under one leader. Ibn Batuta, early in the 14th century, mentions a king of Bíja, named El Hadrabi, who received two-thirds of the revenue of Aidhab, the other one-third going to the king of Egypt. Their territory contained gold and emerald mines, and they escorted pilgrims from Kús to Aidhab, along the road then followed by pilgrims to Mecca. At the close of the 14th, or very early in the 15th, their rich town Zibid (Aidhab ?) on the Red Sea was destroyed, according to Leo Africanus, by the Sultan, and this seems also to have destroyed their cohesion, for the Aidhab road was permanently closed about the same time. Early in the 16th century Sawákin was in the possession of the Turks to whom the "Troglodytæ" (Hadendoa ?) paid tribute. Leo Africanus (1526) describes the Bíja as "most base, miserable, and living only on milk and camels' flesh." Selim El Assúani says that they reckoned their lineage from the female side; that each clan had a chief, but that they had no sovereign and no religion; that the son by a sister or daughter succeeded, and that they had fine cows and camels; he adds, in words which might be used at the present day, "they are swift in running, by which they distinguish themselves from other people. Their camels are likewise swift and indefatigable, and patiently bear thirst; they outrun horses with them and fight on their backs, and turn them round with ease." Their country was always in commotion, and they were

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a people ever prone to mischief. I have already alluded to the settlement of the Rabya, a tribe which entered Egypt with Amr, and took a leading part in the conquest, amongst the Bíja, and similar settlements appear to have taken place amongst the eastern tribes by Arabs from Hadramaut, for Selim El Assúani states that the Hadhareb are the principal men of the nation. On the other hand, Ibn Batuta remarks that near the Red Sea coast the Bíja had some Bedawi Arabs subject to them. The questions connected with the site of Aidhab, the position of the gold and emerald mines, and the old pilgrim road, though very interesting, hardly find a place here. Enough has been said to show the peculiar relations that have existed between the Arabs and the Bíja, and to explain the origin of the Sheikh families, which constitute such a peculiar feature amongst the tribes.

The *Ababdeh* occupy a most important position, for they extend from the Nile at Assúan to the Red Sea, and reach northwards to the Keneh-Kosseir road, thus completely covering the south border of Egypt east of the Nile. They represent with some of the Bisharín clans, the Blemmyes of the classical geographers, and their *habitat* is little changed since the Roman period; they were in a constant state of warfare with the Romans, who at last adopted the policy of subsidizing them. In the middle ages they were known as Bíja, and conveyed pilgrims from the Nile Valley to Aidhab, the port of embarkation for Jeddah. From time immemorial they have been guides of caravans through the Nubian Desert, and up the Nile Valley as far as Sennár; they intermarried with the Núba and settled down in small colonies at Shendi and elsewhere long before the Egyptian invasion. When the Súdan was conquered by Muhammad Ali, the Ababdeh rendered important services as guides, in supplying information, and in providing camels for transport; the Fogára clan in reward for its services was given the guardianship of the road across the Korosko Desert, and its chief, now represented by Hussein Pasha Khalífa, was made Khalífa; new Ababdeh settlements were also formed at Abu Ahmed and other places. They are still great trade carriers, and penetrate into the most distant districts; and as they are constantly meeting members of the various colonies of their tribe they have unusual sources of information and opportunities for intrigue. The Ababdeh as a rule speak Arabic, having from close contact with Egypt lost their own language, but the eastern portion of the tribe in many cases still speak To-Bedawiet; those sections nearest to the Nile have a large admixture of fellah blood. They claim an Arab origin,[1] ap-

[1] Burckhardt says they are descended from Selman, an Arab of the Beni Helal.

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parently through their Sheikhs, and they have adopted Bedawi dress and habits, but they are not so warlike nor of such fine temperament as the true Arabs of Upper and Lower Egypt who look down upon them with feelings almost of contempt. They are lithe and well built but small; the average height is no more than five feet except in the Sheikh class who are evidently of Arab origin. The Ababdeh have the character of being faithless and being bound by no oath; they are notorious for duplicity rather than for courage; and are not to be trusted unless one of the nearest relations is left behind as a hostage. They were formerly poor, but have now become enriched by English gold, and probably the most wealthy of the tribes; this has not, however, secured their complete loyalty. The Ababdeh clans are: (1) The Ash Shebab, Sheikh Beshír Abu Jibrán, who appears to be a descendant of the Beshír Ibn Merwan of the Rabya, who first settled amongst the Bíja; they live in the eastern part of the desert, and number about 3,000 camel men; (2) The Abúdyín, Sheikh Minshetta Karar, numbering 1,000 to 1,500 men; and (3) the Fogára, Hussein Pasha Khalífa, about 1,000 men. Sheikh Beshír is looked upon as the representative of the old line of Sheikhs, but the privileges granted to the Khalífa family by Muhammad Ali and his successors have rendered their clan the most wealthy and important.

The *Bisharín* occupy a position almost as important as that of the Ababdeh, for they stretch from the Nile, between the Atbara and Abu Ahmed, to the vicinity of Mount Elba on the Red Sea, and hold the western portion of the Sawákin-Berber road. They are nomads, and divided into several clans of which we have little definite information, but they are said to number about 20,000 men. They speak To-Bedawiet and are apparently of much purer blood than the Ababdeh. They are well-built, have good features, coarse, wiry, black hair dressed up in the Bíja fashion, and the velvety skin of the Bíja race; they are great trade carriers and celebrated for their breed of camels. The north-western clans are almost entirely dependent upon Egypt for their supply of wheat and other necessaries, which they obtain from Assúan; and they are allied to the Ababdeh of that district. They have never taken any very active part in the Súdan disturbances, and most of the clans remained neutral though much pressed by Osman Digna to join him. The known clans are:—

Shentirab.—On the east near the Red Sea.
Hamed Orab.—On the east near the Red Sea.
Aliab.—In the Korosko Desert south of the Ababdeh.
Amrab.—In the Korosko Desert south of the Ababdeh.

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Eireiab Hamar Geihamab Nafiab	On the right bank of the Nile north of the Atbara.

Burckhardt also mentions the Hammadab, a handsome, bold race, much given to drinking, on the Atbara; and the Baterab, but I did not hear these names mentioned.

The *Kabbabish* tribe (Bruce derives the name from Hebsh Sheep) is perhaps the largest in the Súdan, and its various clans range over a wide extent of country west of the province of Dongola, and from the Nile to the confines of Darfúr. Their language is a pure Koranic Arabic, but their origin is not known; they have a tradition that they are of Mogrebin extraction, and that they were many generations ago driven from Tunis. They may thus perhaps be of Berber descent; but whilst the Sheikhs are apparently of Arab origin the men seem to be more nearly allied to the Bíja tribes than to the Arabs. There is a curious notice in Leo Africanus to the effect that the king of Nubia, whose capital was Dongola, was constantly at war with the people of the Desert of Goran, on the south (*i.e.*, Bayuda), who, being descended from the people called Zingani, spoke a language no one else understood. May not this reference be to the Kabbabish not then Arabicised. The view that the Kabbabish are not Arabs is supported by the fact that they say the Kawahleh, one of their clans, is not Kabbabish, but was affiliated to them many years ago. Kawahleh is a name of Arab formation, and Burckhardt in the early part of this century mentions them as a distinct tribe not so numerous but more powerful than the Shukríyeh and living about Abu Haraz and on the Atbara; the clan which is a very powerful one, took a distinct line of its own in favour of the Mahdi during the rebellion. It seems not unlikely that the Kabbabish received Arab rulers, like the Ababdeh, after their arrival in the Súdan; they own vast herds of camels, cattle and sheep, and before the war they used to have a monopoly of all the transport from the Nile, north of Abu Gússi to Kordofan. They are dark, with black, wiry hair, carefully arranged in tightly rolled curls which cling to the head, and rather thick aquiline noses. They have had little contact with civilisation, and the politics of the tribe were always difficult to understand. They are divided into two great branches each of which consists of several clans.

The Sheikh of the whole tribe is Sh. Saleh Fadlallah, who, before the war lived in great state; he has much slave blood and is nearly black. The section formerly under his immediate control consists of the following clans:—

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Núrab, at Bir es Safi and Gabra; Sh. Saleh's own clan.
Welad Hauwelab, at Bir Ambalíli; Sh. Saleh Wad Obeid.
Serajab, at Bir Amri and Hajilij; Sh. Ahmed Wad Menallah.
Attawiyeh, at Bir Hobej.
Welad Suleiman, at Bir Es Safi and Bint Umm Bah.
Hauwarab, at Bir Gabra.
Umm Seraih, east of Bir Hobej.
Rawaheleh, at Bir Umm Sidr.
Rahuda, at Bir Es Safi.
Shenabla, near Obeid.
Kibeishab.
Kawahleh, Bir el Kejmar.
Aiwardieh, Ghalayan, Walad Ugbah, Hímrab, Ayayit, and Dereywab.

The minor section under Sh. Salim Isáwi, is often called the Umm Meter tribe; many of the Sheikhs and others have houses on the Nile in the Dongola province, but the clans really live in the Kab Valley, an oasis running parallel to the Nile. The clans are, passing from south to north, the Bósh, Wamattú, Ghudayrab, Gungunnab, Dar Búshút, Murayssísab, Dar Hamid, Bulaylat, Awáyídah.

II. *Semitic.*

All the Arab speaking tribes of the Súdan speak a pure but archaic Arabic, such probably as they spoke when they left Arabia. They invariably pronounce the letter Kaf as "*g*" in good, and the Jím like "*j*" in jar, agreeing in this respect with the Syrian and Bedawi pronunciation, and not with the Egyptian. The Arabs distinguish themselves as Ahl Ibl, "people of the camel," who live as nomads in the desert, and have kept their blood pure; Ahl Sawáki, "people of the Sakieh," who have settled down as agriculturists, irrigating the ground, and have intermarried with the Núba; and Baggárah, or cattle breeders and owners. The purely nomad tribes on the south have to make annual migrations to avoid the fly (Johara) which appears during the rainy season; these migrations are nearly always attended by disturbances, but the Egyptians utilised them, as the Funniyeh kings did at an earlier date, to collect the taxes. Several of the tribes, as the Shagíah and Já'alin, have adopted the non-Semitic custom of gashing the cheeks, but the habit is not general. As a rule the head is shaved according to Arab custom, but the rule is very laxly observed by men of mixed descent; there is, however, no "hair-dressing" such as exists amongst the Hamitic tribes. The Arab arms are the lance, the two-edged sword, and a small knife fastened by a strap to the

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left arm, and they do not carry a shield; they follow what appears to be the old Semitic custom of beheading a fallen enemy, but they never mutilate the bodies in the horrible manner that the Bíja races (Hadendoa) do, nor do they maim prisoners in the way Osman Digna is said to have done.

One of the most interesting, and at the same time one of the most obscure questions in the Súdan is the extent to which the conquering Arabs established themselves amongst the indigenous tribes as over-lords or ruling families. In the case of the Bíja (Ababdeh?) we have, as already noted, an historic record of an occurrence of the kind, and it seems probable that many other tribes accepted Arab rulers in a similar way. This would explain the claim of people such as the Mahass, who are clearly Núba, to be of Arab origin; and also the Semitic type, the higher intelligence, and often the greater stature of the Sheikh class. In some cases the Arab rulers appear to have intermarried with slaves rather than with the tribe they had joined, as in the case of Sheikh Saleh, of the Kabbabish, who is nearly black. The chiefs of settled clans are always termed Meliks, whilst those of the nomads are Sheikhs, a distinction that seems to be of very ancient date. The "Meliks" or kings of Palestine who were overthrown by Joshua, probably occupied positions analogous to those of the Súdan Meliks.

The nomad Arabs, especially the Baggárah, are as thoroughly Arab now as when they left their Asiatic home, and it may still be said of them that their hand is against everyone and everyone's hand against them. Before the Egyptian conquest the riverain population was armed and strong enough to resist the nomads, and in the south the Sennár Government maintained order with an army of blacks. During the Egyptian occupation the riverain population was weakened by misgovernment and over-taxation; the country was depopulated to a great extent, and the power of the Meliks taken from them. Order was kept by the Egyptian military forces, but these having now been withdrawn, or killed, the riverain population is entirely at the mercy of the nomads. That the latter have made use of their power we know from recent accounts, and the fact that Danaglas have been raided and sold as slaves in Egypt since the withdrawal of the British troops.

The Gararish, or *Kararish*, are semi-nomads, extending along the right bank of the Nile from Wady Halfa to Merawi: many of them are settled as agriculturists in Argo Island, and they are much employed as guides and in the transport of goods. They claim to be distantly connected with the Fogára clan of the Ababdehs; they are evidently of very mixed blood, but the Arab type is much stronger than the Bíja, and they are pro-

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bably of Arab origin. They number about 400 men and have two Sheikhs: Sh. Abdullah Wad Shemein and Sh. Suleiman.

The *Hauwawir* are pure nomads and extend along the desert road from Debbeh to Khartúm as far as Bir Gamr, and from Ambigol to Wády Bishára. They claim to be, and evidently are, of pure Arab blood, and say that they are related to the Huweir of Egypt. They are not unlike the nomad Já'alin in appearance, and they have not adopted any of the African customs such as gashing the cheek, and dressing the hair; they are friends and allies of the Sowarab, number about 2,000 men, and have large herds of oxen, sheep, and many camels. The Sheikh is Khalífa Taiyalla. The clans are:—

Fezarab, at Bir Gamr.
Mowalikeh, at Bir Bahat.
Hamasín, at Bir El Elai.
Umm Kereim, at Bir abu Osher.
Harrarín, at Bir Hassanauwi.
Umm Roba, at Bir Bayúda.

The *Shagíah* are, perhaps, the most interesting tribe in the Nile Valley; they are partly nomad, partly agricultural, and occupy the country on both banks of the Nile from Korti to the vicinity of Birti, and a portion of the Bayúda desert. They claim descent from a certain Shayig Ibn Hamaidan, of the Beni Abbas, and maintain that they came over from Arabia at the time of the conquest, but whether they led the van of Arab invasion in the seventh century, or took part in the greater invasion and conquest in the fourteenth century, is uncertain. At Old Dongola there is an inscription to the effect that Safeddin Abdullah (who may have been a Shagíah chief) opened a mosque on the 1st June, 1317 A.D., in honour of his victory over the infidels. On reaching the district they now occupy the Shagíah dispossessed and largely intermarried with a people of Núba origin, whose language was Rotana; some of the places still retain their Rotana names; and in one part of the district there are families which have preserved their Núba blood in comparative purity. Like other Arab tribes they formerly owned allegiance to the Funniyeh kings of Sennár, but when the central authority become weak they threw off the yoke, and prior to the advent of the Memlúks in the Súdan had possessed themselves of the country northwards as far as Mahass. They were forced back by the Memlúks, but they have never forgotten that they once ruled Dongola; and the Danáglas still tell dismal stories of the sufferings they endured under their Arab taskmasters. Hence arose a blood feud which had a curious influence on several

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incidents of the Súdan rebellion. When the Egyptians invaded the country in 1820 the Shagíah were under two "meliks" or "kinglets," Chaues and Zubeir, whose modern representatives are Saleh Bey Wad el Mek, and Khashm el Mús. At that period they were distinguished for their love of liberty, their courage, their skill as horsemen, their hospitality, their schools, in which all Moslem science was taught, and their great wealth in corn and cattle; their cavalry mounted on horses of the renowned Dongola breed were known and dreaded throughout the Súdan; their arms were the lance and sword; and the chiefs wore coats of mail and had shields of hippopotamus or crocodile skin, whilst the horsemen carried javelins which they threw. They offered a stubborn resistance to the Egyptians, but, once subdued, they joined the Egyptian army, and rendered important services in the further conquest of the country. For these services, and others connected with the suppression of the Já'alin revolt in 1822, they were granted lands on the right bank of the Nile, between Shendi and Khartúm, from which the Já'alin had been expelled. As the Egyptian power became consolidated these settlements increased in importance, and supplied recruits to the Shagíah battalions of Bashi Bazúks, of which the Egyptians maintained several; these battalions were commanded by Shagíah officers, many of whom grew wealthy and had country houses at Halfaya, near Khartúm. The military relationship was followed by a more intimate one, for the Turks took Shagíah wives, and the sons all entered the Bashi Bazúk force, and became the best fighting material in the Súdan from a Bashi Bazúk point of view.

The tribe is divided into twelve clans, and of these the Sowarab and a portion of the Aümiah remained nomad, whilst the others became agricultural as they intermarried with the Núba. Their country, which is the ancient kingdom of Ethiopia, is the most fertile south of the Fayúm, and many of their villages are well built, with a proportion of fortified houses not unlike in shape the pylon of an Egyptian temple. The Shagíah speak Arabic, and, as a rule, preserve the Semitic type, but the large admixture of alien blood is very evident, and the Núba families amongst them, though thoroughly Arabicised, retain their Núba features. The nomads have to a great extent preserved their purity of blood, and observe many Arab customs lost to the riverain population. The latter section has sadly deteriorated through close intercourse with the Turk and Albanian Bashi Bazúks in the Egyptian service; of all people in the Súdan they are the most fickle, one day loyal, the next openly disloyal; one day as brave as lions, the next as timid as sheep; capable of acts of great self-sacrifice, and also of the

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foulest treachery. Their actions seem to be governed by impulse, and it is impossible to say what a Shagíah will do under any given circumstances. General Gordon's first fight was to rescue a few Shagíah, shut up in a fort at Halfaya, who, to everyone's astonishment, remained loyal while their comrades went over to the enemy. Saleh Bey, the head of the whole tribe, surrendered at Fadassi, on the Blue Nile, with a steamer, boats, guns, and ample provisions, when he knew he was to be relieved in two or three days by Gordon; yet no sooner did he join the Mahdi than he refused to obey him, and was kept in chains throughout the siege. Khashm el Mús, on the other hand, remained loyal to the end under most trying circumstances. General Gordon says he "will back them to try a man's patience more sorely than any other people in the wide world, yea, and in the universe." The Shagíah are religious, and in no tribe has the teaching of Sidi Osman, of Kassala, which represents progress and civilisation as opposed to the stagnation and barbarism of Mahdiism, so many followers.

The Shagíah clans are :—

1. B'aúdab, at Birti. Melik, Muhammad Wad el Sadyk.
2. Omarab, at Amri. Melik, Walad Sôeyl.
3. Wad Umm Salim. Sub-clan Hamdab, at Hamdab. Melik, Wad et Tayib.
4. Kadangab, at Barkal and Karímah.
5. Nafiab, or Walad Amir, at Dúaim. Melik, Omar Soleyman.
6. Howeyshab, at Abu Dom Sanam. Melik, Saleh Samarít. Sub-clan Salahab.
7. Sowarab, the settled portion at Goreir and Hattáni, Sheikh, Muhammad Saleh; and at Wady Bishára, Sheikh Wad el Uzeirik. The nomad portion is divided into two principal sections, the Deisarab, Sheikh Muhammad Wad el Kheir, and the Fufunja, Sheikh Ali Baghít. The nomads number about 1,000 men, and stretch across the desert from Abdúm to Bir Gamr and Wady Bishára; they own large numbers of camels, cattle, and sheep, and before the war had charge, with the Hauwawír, of the Debbeh-Khartúm road.
8. Aúniah, partly settled at Korti and Wady Bishâra; partly nomad in the desert between those places.
9. Hannikab. Melik, Khashm el Mús.
10. Adlanab. Melik, Saleh Bey.
11. Rakabíyah.
12. Hakemab, at Belal and Núri.

At Belal and Núri are several Núba families of nearly pure blood, which, though now speaking Arabic, and Arab in habit, appear to have been later immigrants from the south-west at

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the time of the Funniyeh supremacy. At Korti are the Bedayriah, a Núba people with an admixture of Arab blood, who still speak Rotana amongst themselves. They are generally classed with the Shagíah, and were until lately under Shagíah chiefs, but their name, derived from Bedayr, the diminutive of Bedr, "the full moon," is Arab; possibly at an early period some numbers of the Bedayriah tribe, now north-north-west of Kordofan, may have established an over-lordship, which was afterwards wrested from them by the Shagíah.

The next in interest and importance is the Já'alin tribe, which formerly occupied the country on both banks of the Nile from Khartúm to Abu Ahmed. The Já'alin claim descent from Abbas, the uncle of Muhammad, of the Koreish tribe, and they are undoubtedly of Arab origin, though the type has been much modified in those clans which took to agricultural pursuits and intermarried with the Núba population. The name Já'alin (sing. Já'ali) does not seem to be derived from any founder of the tribe, but from the root Já'al, "to put," "to stay," and hence it means, in this sense, those who abide or settle. The term Já'allah (root, Já'al) is still used in the Lebanon for the temporary abodes of the people in spring-time; and Já'alin are therefore what we should call "squatters" on the banks of the Nile. According to their own tradition the Já'alin emigrated to Egypt in the 12th century, and thence worked their way up the Nile, but they appear to have settled in the Súdan before the Shagíah, and probably reached the country at a much earlier date than the 12th century. They were tributary to the Funniyeh kings of Sennár, and must then have been of great importance, for they had a prince of their own race called Wad Agíb, whose family intermarried with the reigning family, and who, under the kings of Sennár, exercised authority as chief of all the Arabs eastward to the Red Sea, and northward to Korti and Mahass. At the date of the Egyptian invasion they were independent, and the strongest of the Arab tribes; at first they submitted, but in 1822 the Saâdab clan rose, under Mek Nimr, who was of the Wad Agíb family, and massacred the Egyptian garrison at Shendi and burned Muhammad Ali's son alive. The rebellion was suppressed in the most ruthless manner; the Saâdab were almost exterminated and their lands given to the Shagíah; and the whole Já'alin tribe was afterwards looked upon with distrust. The Já'alin were practically debarred from Government employment, and from service in the Bashi Bazúk force which was recruited from the more favoured Shagíah; they never became completely reconciled to Egyptian rule, and this may explain the fact that they were the first tribe near Khartúm to rise, and that almost to a man, they went against the government. The

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noted Zubeir Pasha belongs to the Jamiab clan of the tribe; he is descended from one of the oldest families, and there is little doubt that, had he been so disposed, he could have kept them loyal and the country north of Khartúm open. It was the existence of this hostile tribe north of Khartúm which made communication with General Gordon so difficult. The Já'alin are now partly agricultural, partly nomad, and they are divided, as far as could be ascertained into the following clans:—

Gereiyat.—Sheikh Wad el Jahúri; nomads between the Nile near Khartúm and Bir Gabra umm Gammal, there are three sections: the Wahalab, Sanitab, and Mukatab; and they number about 1,000 men.

Futahab.—Nomad and riverain on left bank a little below Khartúm.

Sururáb.—Sh. Muhammad Wad es Seyd, agricultural, between Omdurman and Kereri; on left bank.

Jamíab.—Partly nomad partly agricultural; between Jebel Garri and Kerreri, and thence to Bir Gabra in the desert. They were formerly on both banks of the Nile, but now on left bank only. Zubeir Pasha and Feki Mustapha, who blockaded the north side of Khartúm on the left bank, belong to this clan.

Gereishab.—Agricultural; Sh. Wad el Habashi at Wad Habashi north of the Sixth Cataract.

Sâdab.—Agricultural; at Salawa on left bank, and round Shendi on right bank. The Sheikh Wad Hamza of the family of Mek Nimr was the Mahdi's Emir of Shendi.

Suleiab.—Sh. Fayit; nomad and agricultural, Wady el Ahmar, on left bank.

Muhammadab.—Sh. El Khidr, agricultural; near Matammeh.

Kitayab.—Sh. Feki Khalaf Allah, left bank below Matammeh, said by some to be the parent Já'ali clan, and the Sheikh is looked upon as the head of the whole tribe.

Arâmelab.—Melik Beshir; agricultural, left bank below Matammeh; they are called the people of Wad Agíd.

The *Jebelab, Mukniyeh, Aliab, Zeidab, Temarab*, and *Nafiab* are also Já'ali clans below Matammeh, partly nomad and partly agricultural.

The Já'alin differ so much from the Shagíah in feature that they can readily be distinguished at a glance. Burckhardt says that the true Já'alin from the eastern desert have exactly the same countenance and expression of feature as the Bedawin of Eastern Arabia, and he remarks that their beards are even shorter and thinner. Mr. Van Dyck, son of the well-known Dr. Van Dyck of Beirút, who was with me in the Súdan, compared the difference to that between the Druses (Shagíah) and

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Maronites (Já'alin). The typical Já'ali has a nearly perpendicular forehead, a sharp nose, and a rather pointed chin which sometimes projects in a marked manner. The Shagíah has a sloping forehead, a more aquiline nose, and a slightly receding chin. The Shagíah face is long, with a contemplative expression; the Já'ali face is short with a quick, sharp expression as of a smart man of business. The Shagíah have the character of being overbearing as Bashi Bazúks, and hard as masters or landowners; the Já'alin of being unscrupulous merchants and cruel slave dealers. Both tribes have adopted the African custom of gashing the cheeks of their children; the Shagíah gashes are vertical, the Já'ali horizontal, and the latter say they adopted the custom from the former.

The *Monassir* occupy the cataract country from Birti upwards to the Robatabs; they are partly nomad, partly agricultural, but have no great extent of cultivated ground; the riverain population lives in houses and villages, and the whole tribe numbers about 2,500 men. They claim kinship with the Ababdeh through a common ancester, Mansúr, brother of Abad, the reputed grandfather of Ababdeh; they are also connected with the Shagíah. Their language is Arabic, and they appear to be, like their neighbours, the Shagíah, of mixed Arab and Núba descent; their connexion with the Ababdeh may be through the Arab blood in that tribe. The Sheikh Suleiman Wad Náman Wad Gamr acquired an evil reputation through the murder of Colonel Stewart and the English and French consuls.

The clans are:—

Hamámíd, at Bir Sáni.
Kahúlah, at Ab Kharít.
Kajabáb, at Bir Jawrah or Jórá.
Walad Gamr, at Wady Gamr.

The *Robatab* are partly nomad, partly agricultural; they occupy the great bend of the Nile at Abu Ahmed, and the island of Mograt. They speak Arabic and claim descent from a certain Robat, or Rabat, of the Beni Abbas; but they are very frequently spoken of as one of the Já'alin clans. They are of mixed Arab and Núba blood, and number about 3,000 men. The heads of the two divisions of the tribe are Melik Muhammad Nabíh who lives at Kuddek, and Sheikh Bishír of Mograt Island.

The *Hassaníyeh* are pure nomads, and apparently of Arab descent. They occupy the desert between Abu Dom (Merawi) and the Nile opposite Shendi; the range of Jebel Garri at the Sixth Cataract; and the left bank of the Nile south of Khartúm. They are thus much scattered, and everywhere they have the same reputation as robbers; they have blood feuds with the

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Sowarab and Hauwawír, but intermarry with the Monassír. The Sheikh of the northern section, Wad el Fezari, lives at Bir Ghirir, near the Merawi-Shendi Road.

The *Ghubush*, a small settlement on the left bank of the Nile opposite Berber, are all fakirs, or religious men. They are an offshoot from the Bedayríah, and came originally from Kordofan. They were allowed a subsidy by Muhammad Ali, and afterwards by the Egyptian Government, but they all joined the Mahdi, and one of their number, Muhammad el Kheir, became Emir of Berber after it fell.

The *Meyrifab*, a small semi-nomad tribe on the right bank near Berber, are of doubtful origin. They speak Arabic, and are sometimes classed as Já'alin, but the Já'alin repudiate them; their name does not seem to come from an Arabic root, and it seems a question whether they are not of Bíja origin. It is said that, contrary to Arab custom, they never marry slaves.

The *Awadíyeh* and *Fadníyeh* are two small nomad tribes of pure Arab blood, living in the desert between the wells of Jakdúl and Matammeh; they are often incorrectly classed as Já'alin, but do not belong to that tribe; the former is more nearly allied to the Robatab. They have large numbers of horses and cattle but no sakiehs; the horses are of the celebrated black Dongola breed, and some mounted men of the former tribe charged one side of the square at Abu Klea with much spirit. The Sheikh of the Awadíyeh is Beshír Wad ed Dabba, and of the Fadníyeh, Muhammad Wad el Feki ez Zein.

The *Battakhín* occupy the banks of the Blue Nile near Khartúm; and it was with them that General Gordon fought most of his battles near Khartúm. Their Sheikh, El Obeid, inflicted the crushing defeat on General Gordon's troops on the 4th September, 1884, which was the proximate cause of the journey of Colonel Stewart and the consuls, and which virtually sealed the fate of Khartúm. Bruce calls them "a thieving, pilfering set," but none of them were met with by the Nile Expedition, and I can only suggest that they are like the Já'alin, of mixed Arab and Núba descent.

The *Shukríyeh* is a large tribe of nomads between the Atbara and the Blue Nile; the name is of Arab formation, but nothing is known of the history of the tribe. They remained neutral under their Sheikh, Muhammad Aud el Kerím, and have always held aloof from the Mahdi and the western Arabs.

The *Baggarah* tribes of Kordofan, so called from their being great cattle owners and breeders, are true nomad Arabs; they have intermarried little with the Núba, and have preserved most of their national characteristics. The date of their appearance in the Súdan is uncertain; they appear to have drifted up the

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Nile Valley and to have dispossessed the original Núba population and driven it to the hills. The Dughaim was, as we have seen, on the left bank of the Nile between Assiút and Assúan in the 14th century, and the Jeheineh in Upper Egypt in the 15th century; of the other tribes we have no record. The true Baggarah tribes use oxen for saddle and pack animals; they carry no shield, and their arms are the lance and the sword. The men are perfect types of physical beauty, with fine heads, erect athletic bodies, and sinewy limbs; they are hunters and warriors, and are much superior to the indigenous races in mental power. They constituted the real fighting force of the Mahdi, and charged the English squares at Abu Klea and Gubat with the greatest determination. It was these tribes that destroyed Hicks' army, captured Obeid, and inflicted most of the defeats on the Egyptian Army; and their decision to follow the Mahdi out of their own country to Khartúm caused the fall of that place. The Baggarah have never been properly studied, and even the names of the tribes are uncertain; those best known are:—

Hawazma or Hawazim.—South of Obeid. Sh. Nawwai.

Kenana.—South-west of Abu Haraz; fought at Abu Klea and were almost annihilated; in 1821 they were south of Sennár.

Dughaim.—Borders of Darfúr; lost heavily at Abu Klea.

Habanieh.

Beni Jerar.—South-west of Khartúm. Sh. Ibrahim Wad el Melia.

Mahalia.

Bedayriah.—North-north-west of Obeid.

Hadiyat.

Rizegat.—South-east of Dara.

Hamr.—West of Obeid, are really not Baggarah, as they own large herds of camels, and used to be carriers of goods between Darfúr and Obeid. They have a blood feud with the Kabbabish.

Jawamíah.—Lost many men at El Gubat.

Jalídat.

Majanín.

Fedayan.

Howara.—Sh. Abdul Kadi Abu Hasneh.

Ta'áysheh.—Darfúr. Sh. Abdullah of this tribe succeeded the Mahdi, and appears to be one of the most energetic of the Arab leaders.

Jeheineh.—Darfúr; were in Upper Egypt in Macrizi's time, beginning of 15th century. A branch of the tribe, the Rufye or Rifaa is south of Sennár.

Ma'áli.

Jámah.

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III.—*Núba.*

The old Arab geographers divided the Núba country into Merys, Baku, and Aloa.[1] Merys apparently extended from Assúan to the head of the cataracts at Hannek; Baku was the Dongola district, and Aloa was the Sennár kingdom, of which the dependencies reached down to the borders of Dongola. Selim el Assúani, as quoted by Macrizi, gives some interesting details of these countries; Merys, in which the Merysy language was spoken, was governed by a governor called the "Lord of the Mountain," who was appointed by the great chief of the Núba. Near Berber there was a Bíja tribe, Zenafej, which had its own language, and did not intermarry with the Núba, but which received a chief appointed by the Núba. On the Atbara, however, the Núba and Bíja intermarried and were called Deyhún and Nara. The king of Aloa resided at Souba, of which the ruins exist at Soba on the Blue Nile; he wore a gold crown, had a large army, and was possessed of much power. The people he ruled over were Christians, whose bishops were nominated by the Patriarch of Alexandria; their books were in Greek, which they translated into their own language, and they had many churches.[2] I have mentioned these details chiefly to show that for several centuries there was a compact and strong Christian kingdom in the Súdan, founded and administered by Núbas, and also as tending to show that the Arab domination in Sennár must have been very brief, for the new Núba kingdom was founded there early in the 16th century. The Núba are an essentially agricultural people, and, as far as we know, indigenous to the country.[3] They form the basis of the population of the Nile Valley from Assúan to Korti, and are widely spread over Kordofan, Darfúr, and Sennár. Between Assúan and Korti, the terms Núba and Bíja are still in use to distinguish the Rotana from the To-Bedawiet speaking people. Rotana, the name used to distinguish the Núba language, has passed into Súdan Arabic as a verb, and the people use it in the sense of "to *rotan*" in Turkish, English, &c. The Núba of the Nile Valley are divided into three sections—the Kenús, Mahass, and Danáglas, all speaking Rotana with certain dialectic differences; the dialects of the first and last agree more nearly with each other than they do with that of Mahass: and this last again more nearly ap-

[1] See note, p. 4.

[2] There is also a record of an important Núba embassy which was sent in great state to Baghdad by the Núba king Zakarya ibn Bahnas, under his son Fayrakeh.

[3] Selim el Assúani says that Salha, the forefather of the Núbas, and Mokry of the Mokras, came from Yemen, and were descended from Hemyar; also that the Núbas and Mokras spoke different languages. The present representatives of the Mokras are not known.

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proaches the language of the Núba of Kordofan, who represent the original stock.

The Kenús apparently take their name from the Beni Kens,[1] a branch of the Rabya tribe which entered Egypt with Amr, and took part in the conquest; some of the Aleykát also settled in the Kenús district, which extends from Assúan to Wady Halfa; and so also did the Bosniacs who came up the river during Sultan Selim's reign, and many Turks and Albanians since that time. In several villages the large admixture of foreign blood has greatly modified the Núba type, but in manner and habit the people are still Núba. The Mahdi was descended from a Beni Kens family which emigrated two or three generations ago to Dongola; he hence claimed descent from the Koreish tribe, but in feature and colour his family could not be distinguished from the surrounding Núba.

The Mahass, who claim descent from the Koreish are really of purer Núba blood than the Kenús and Danáglas; the reason of this seems to be that until the recent operations all traffic, or nearly all, up the Nile went by the left bank and hardly touched Mahass. The Mahass repudiate all relationship with the Kenús and the Danáglas, but on the other hand they claim kinship with the Já'alin, and I heard from other sources of a Mahass settlement in the Já'alin country not far north of Khartúm. The Mahass never marry slave girls as the Kenús and the Danáglas do, and this has also tended to keep their blood pure.

The Danáglas or Dongolese were, before the Memlúk invasion, always governed by the Zubeir family, of which the present representative is Tombol ibn Zubeir, the Melik of Argo, and were tributary to Sennár. They have a large admixture of Arab, Turk, and slave blood, but except in Ordeh, where Rotana is not spoken, they are Núba in type and language. The Danáglas are great agriculturists, and they have followed the Egyptians to various places in Kordofan, such as Bara, which, by their skill in irrigation, they have turned into fertile oases. They are also acute and intelligent traders, and the most pertinacious and active of slave hunters and slave dealers. Egyptian misgovernment and over-taxation having ruined the country and forced a large portion of the agricultural population to leave, their place has partially been supplied by slave labour, and it is calculated that nearly two-thirds of the population of the Dongola province is slave.

To the Núba race belong the Ghodyat and other tribes that form the mass of the agricultural population of Kordofan; the

[1] The Beni Kens are said to have first conquered Dongola and built a mosque there.

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Kungára of Darfúr; and I believe the sedentary population of Sennár. Racial purity is, however, best preserved by the tribes of Jebel Daïer, J. Takalla, and Dar Núba. In these mountain fastnesses the Núba have maintained their independence against Arab and Egyptian, and on the terraced hill-sides they have grown sufficient corn for their simple wants. During the supremacy of the Funníyeh kings of Sennár, when the Arab tribes were kept under control by an army of negroes, the Núba had greater freedom of movement, and there is a Núba settlement between Debbeh and Abu Gússi, which only established itself on the Nile at the commencement of the present century.

The Núba are lighter than the Negro, and darker than the Arab; their noses are less flat, their lips less thick, their cheek bones less projecting than the negroes; and their hair is not woolly but curled and wiry. The character of the Núba, and their habits have been pictured by a master hand, that of Burckhardt, and I need say no more than that I agree with him that they are "a people of frolic, folly, and levity; avaricious, treacherous, and malicious; ignorant and base; and full of wickedness and lechery."

Explanation of Plate I.

Sketch-map, shewing the distribution of the tribes in the Nile Valley, north of Khartúm.

Discussion.

Major C. M. Watson, R.E., said that he could add but little to the very interesting paper which Sir C. Wilson had read, and which contained so much information with regard to the various tribes in the Eastern Súdan. It is worthy of note that there have been two distinct lines of immigration from the East into the Nile Valley, the one by way of the Isthmus of Suez, and the other across the Red Sea from the Arabian coast. So far as one can judge, the former was the most ancient route, and the Ababdeh Arabs, whose ancestors probably came that way were in the country long before the Amarars, Hadendoa, and Beni Amer, who regard themselves as having crossed at a comparatively recent period. The two former tribes speak the Tobedawi, or, as they call it themselves, the Bedy language, while the Beni Amer talk a dialect akin to Tigre. This seems natural when it is remembered that before the Turkish conquest of the Red Sea Coast, the Abyssinian kingdom, or, at all events, the Abyssinian suzerainty extended as far north as Suakin. Pilgrims from Abyssinia to Jerusalem used, at that time, to be escorted by Abyssinian troops to Suakin, where they took an Arab escort, who conducted them across the Bisharin mountains to the Nile.

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The Morghani family, of whom Sir C. Wilson spoke, are well worthy of notice. They believe themselves to have originally come from Bokhara, and certainly the leading members are decidedly Mongol in appearance. The family is the head of the great Morghani sect, which has up to the present exerted so powerful an influence throughout the Súdan, an influence which in the late troubles was always exerted against the rebellion and in favour of peace. The late Seyid Osman El Morghani did all that lay in his power to prevent the spread of the rebellion in the vicinity of Kassala, and his two sisters, who lived at Shendy, did all they could to assist General Gordon. It is worthy of note, and is a proof of the influence of Morghanis that although these two ladies have always been openly opposed to the Mahdi and lived in a district in which most of the inhabitants joined his cause, yet they have been respected and uninjured up to the present time. The conduct of the Morghani sect compares favourably with that of the Senoussi to whom Sir C. Wilson also alluded as having so much influence in the northern parts of Africa and who have positions of influence on the roads leading from Tripoli, Tunis, and Algiers to the interior. The Senoussi are very fanatical, and are strongly opposed both to Christians and to Turks, whom they appear to regard as debased followers of Islam. As all accounts tend to show that the sect of the Senoussi is spreading and its influence is increasing, we shall probably hear more of them later on.

Captain C. R. Conder, R.E., remarked that it would be presumption on his part to say anything much after the exhaustive and valuable paper just read, since he had served only in Lower Egypt and had no special knowledge of the Súdan tribes. Two points, however, struck him in the paper, and one point in Major Watson's speech.

The practice among the Núba tribes of tracing descent from the mother, recalls the ancient practice of Arabia on which Professor Robertson Smith has written a learned work and which is supposed to be connected with primitive polyandry. It has always seemed to the speaker that there was no evidence that these two customs ever prevailed among Semitic peoples; and that the polyandrous people mentioned by Strabo in Southern Arabia, must probably like the Núba, have belonged to a Hamitic or Cushite race, akin perhaps to the non-Semitic Cossai or Cutheans of Elam, whose name is said to mean "dark," and whose coloured representation as a dark, straight-haired race has been discovered it is said on bas reliefs by M. Dieulafoy at Susa. This dark race called the Aithiops of Asia, by Herodotus (who says they differed from the Æthiopians of Africa, in having straight instead of curly hair) was perhaps distantly connected with the Akkadians and with the Hittites, and according to Lenormant with the Dravidians of India. Is it not possible that the Núba may be a branch of this race, which crossed over, as the Arabs also did, from Southern Arabia

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into the Súdan? We have much evidence of such migration from Arabia, not only in the traditions of the tribes, or in history, but also in the derivation of the Amharic and Æthiopic alphabets from the old alphabet of Yemen.

The second point concerns the name of the Jahalin. Sir C. Wilson will remember that there is a tribe so called in Southern Palestine, between Beersheba and the Dead Sea, and while investigating the meaning of the word, Captain Conder found it was connected with *Jahl* "ignorant" or "simple," a term used by Moslems to signify those who lived before Islam, and who were "ignorant" of the truth. Possibly the name shows that the Jahalin are an archaic people, who were so named by Moslem Arabs at a time when they themselves were non-Moslems, just as Kafir (Caffre) is an Arab name for the Bantu peoples of South Africa, signifying "Pagans," and not a real ethnical title.[1]

Major Watson mentioned that the Morghani family came from Bokhara. This is the centre from which many of the secret Moslem societies (Dervish orders) have spread; as for instance, the Bektashi. The freemasonry of the Dervish orders is well known, and the Morghani influence appears to show that they form such a religious order, although they are not one of the "regular" orders, of which there are more than forty. The influence of these orders if properly used might be made one of the best resources of sympathetic native government in the East.

Mr. Bouverie-Pusey and the President also joined in the discussion.

Sir Charles Wilson said in reply that he could not agree with Major Watson that the To-Bedawiet speaking tribes were Arab (Semitic), though they have many Arab customs, common to all nomads, and the Sheikh families are of Arab origin. They may, however, have belonged to a Hamitic race in Southern Arabia, and have, as Captain Conder suggests, emigrated thence to the Súdan. With regard to the origin of the name Já'alin, that which the author had given, on the authority of Mr. Van Dyck, who was well acquainted with the tribes of Palestine, and the peculiarities of Syrian Arabic, was he thought correct.

[1] Is not *Bedu* or *tobedawi*, the language of the "desert" (as the words in Arabic would imply), showing that it is the tongue of the dwellers in the desert as distinguished from the Arabic of the towns and of the settled country?

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FEBRUARY 22ND, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of JOSEPH STRAKER, Esq., LL.B., of 10, King's Bench Walk, Temple, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From DR. G. A. COLINI.—Cronaca del Museo Preistorico ed Etnografico di Roma. 1884, 5, 6.

From the AUTHOR.—Report on the Human Crania and other bones of the Skeletons collected during the voyage of H.M.S. "Challenger," in the years 1873–1876. By William Turner, M.B., LL.D.

—— The Physical Anthropology of the Isle of Man. By John Beddoe, M.D., F.R.S.

—— Le antiche stazioni umane dei dintorni di Cracovia e del comune di Breonio Veronese. Nota del L. Pigorini.

From the ACADEMY.—Atti della Reale Accademia dei Lincei. 1885–86. Rendiconti. Vol. II. Fas. 12.

From the BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—De vestiging van het Nederlandsche Gezag over de Banda-eilanden.

—— Realia. Deel III.

From the EDITOR. Nature. Nos. 902–903.

—— Science. Nos. 208–210.

—— Photographic Times. Nos. 281-2.

—— Revue d'Ethnographie. 1886. No. 5.

—— L'Homme. 1886. No. 23.

Professor FERRIER delivered a verbal address of which the following is an abstract:—

On the FUNCTIONAL TOPOGRAPHY *of the* BRAIN.

By Professor D. FERRIER, M.D., F.R.S.

DR. FERRIER opened a discussion on the question, How far recent investigations on the functional topography of the brain could be brought in relation with craniological and anthropological researches with a view to establish the foundations of a scientific phrenology? The subject seemed to him to fall naturally under three heads:

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1. How far can we yet speak of a functional topography or localisation of function in the brain as having been established?
2. How far is it possible by anatomical investigation of the brain to form an estimate of the powers or capacities of the individual?
3. How far can we arrive at the same result by examination of the cranium or head of the individual?

In respect to the first head, he said it was now almost universally accepted—in opposition to the doctrines of Flourens—that there were definite regions of the brain specially, if not exclusively, concerned with specific functions in the domain of motion or sensation. He then proceeded to describe the position of the various centres of sensation and motion according to the lines laid down in his work on the "Functions of the Brain" (1886). But only one of the aspects of brain function, viz., the physiological, had been determined. The other, or psychological aspect, the correlations between the physiological and psychological, and the anatomical substrata of the brain, were yet far from being clear. And yet until these correlations were definitely established, we could not consider a practical flesh-and-blood psychology applicable to the needs of the physician or anthropologist as having any existence.

The phenomena of disease, specially those relating to aphasia, indicated that the sensory and motor centres, besides being the medium of sensation and voluntary motion, were also the centres of registration and reproduction of our conscious experience and motor acquisitions; and of these in their respective cohesions and accompaniments, the fabric of mind was to be constructed.

Passing to the second head, he remarked that the determination of functional capacity from anatomical investigation of the brain involved many considerations and difficulties. Mere size of parts could not be considered a satisfactory criterion. We require to know something respecting the size of the individual, and the relation of brain to the sectional area of the nerves with which it was connected. We require to know, also, something as to the activity of the circulation and tissue change. And above all, we require to know much respecting the structure of the grey matter, its cells, processes, &c. Supposing all these points determined, then we might say that there is a relation between the size of a given region and the function with which it is related. He illustrated this point by reference to the facts of comparative anatomy, more particularly as regards the sense of smell, and also by local atrophies induced by congenital absence or early

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removal of organs of sense and motion. And he then went on to consider, in detail, what might be indicated in a physiological and psychological view by relatively high development of particular regions. As to the frontal lobes, he expressed his belief that they were related to the higher intellectual faculties by forming the substrata of attention.

On the third head, he remarked that the difficulties as to the determination of capacity were greater than those involved under the second head. For though the skull might be considered as a mould of the brain, yet it was impossible to determine from the skull alone, whether the brain were sound or not; and all the finer complexities of convolution and details of structure were beyond our ken. Mere obvious differences in size of different lobes and regions were all that could be made out by craniological examination. That great differences did exist there was no doubt, and he instanced cases of idiocy and infantile cerebral disease in which marked abnormalities and asymmetries of the skull were very evident, and confirmatory of the conclusions as to the localisation of function otherwise determined.

In determining the greater or less degree of development of particular regions, they had as their guide the cranio-cerebral researches of Broca, Turner, and others. Whether these were as yet fine enough for the anthropologist, though perhaps sufficient for the surgeon, might, however, be questioned.

He described by reference to diagrams what had been determined in respect to the position of the main lobes, fissures and convolutions. In conclusion, he remarked that the data of a scientific phrenology were, as yet, very deficient; but there was reason to believe that if the subject were taken up from different points of view, by the anatomist, physiologist, psychologist, and anthropologist, great progress might be made.

Discussion.

The following notes were sent by Dr. Lauder Brunton, F.R.S., subsequently to the meeting:—

As regards the possible change in the shape of the skull from development of the different centres, it seems to me that if a cortical centre expands in all directions, the number of cells in the longitudinal direction being much greater than in the transverse direction, the *actual* longitudinal increase will be much greater than the transverse, the *proportional* increase to the original size being the same. The development of the visual centre will thus tend to raise the vertex and elongate the head from above downwards, while the development of the auditory centre will tend to push the occiput backwards, and elongate the head in an antero-

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posterior direction.[1] Whether the development of the tactile centre will render the head broader or not I could not be sure, but it seems to me that this is just possible. I have tried by the accompanying diagram to make my meaning more clear.

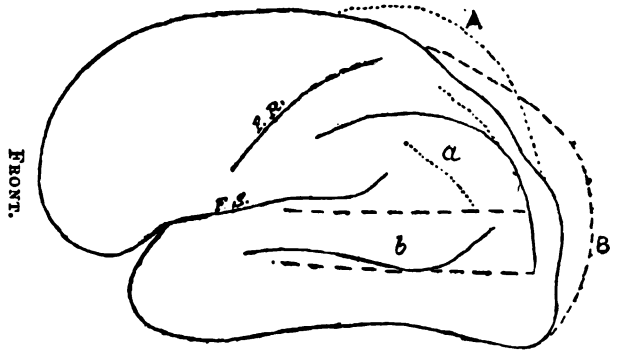

DIAGRAM OF BRAIN

Showing how an increase in the visual or in the auditory centre might change the shape of the skull.

F. R.—The fissure of Rolando.
F. S.—The fissure of Silvius.
a.—The visual centre.
b.—The auditory centre.
A.—Dotted line, showing how an increase of *a* might change the shape of the skull.
B.—Broken line, showing effect of increase of *b*.

I think one may with advantage take into account that throughout the animal kingdom generally, or at least among mammalia generally, the part of the male is to go out and find food for the family, while that of the female is to rear the young ones. Corresponding with the different division of labour between the male and female we may expect to find a different distribution of qualities, and consequently a different development of the centres in the brain. The duties of the male require development of motor power rather than of sensory; those of the female require sensation, and what may be regarded as based upon sensation, emotion rather than motor power. I do not know whether in mammals generally we find greater development of the motor centres as compared with the sensory in the male, and of the sensory as compared with the motor in the female. I think, however, that this is the case to a certain extent in the human race, and that if we compare the skull of a man with that of a woman we

[1] These ideas do not appear, however, to be well supported by a case which Benedict ("Neurologisches Centralblatt," 1886, No. 10) records of congenital blindness in which the eyes were healthy and the blindness probably depended on imperfect development of the cerebral centres for vision. The occiput in this case was abnormally flat.

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find that the former is more largely developed anteriorly, and the latter posteriorly.

Dr. RAYNER remarked that one great difficulty in arriving at an estimate of the mental powers and characteristics of individuals from an external examination of the head, arose from the great diversities of shape in disease, and even in apparent health; a skull which the speaker had a recent opportunity of examining was enormously scapho-cephalic, apparently from premature arrest of development of the frontal bone; in that case the relations of the subjacent brain to its bone covering would have been very different from that which usually attains. In spite of this and other difficulties, he believes that it would be ultimately possible to arrive by external examination at a conclusion, in the majority of instances, in regard to the mental characteristics of an individual.

Sir JAMES CRICHTON BROWNE, Mr. BOUVERIE-PUSEY, Prof. THANE, Prof. FLOWER, and the PRESIDENT also took part in the discussion.

Mr. HYDE CLARKE not having the opportunity of speaking at the close, said he should put his communication in writing. He supported Professor Ferrier's doctrine, that energy or rapidity of thought is an important factor, and referred to the result of his own experiment of fifty years ago, recorded in the "Journal of the British Association," 1870, and in that of the Statistical Society.[1] In confirmation of the Professor's statement that the range in the same individual may greatly vary, he points out that in this case the difference (p. 359) was 25 or 100, or between 1 and 4 in the same individual within ten days. With regard to the Professor's deductions as to men and animals in the matter of speech language, and particularly as to aphasia in men and non-imitation of speech by animals, the attention of the Professor was called to the origin and position of speech language. His postulate was that speech language is a natural and original attribute of man. If, however, there had been an epoch of gesture or sign language antecedent to the origin and development of speech language, then the latter could not be regarded as primary. The state of gesture language was gone through by most infants, and in some cases, though able to articulate, they remained in this state of mutes until five, six, or seven years old. They would understand, as many a dog does, words addressed to them, but would not communicate by speech even with their speaking brothers and sisters.

His own observations upon the mutes of the Seraglio, at Constantinople, and upon other examples of gesture language showed him that within its limits, gesture competed well with speech, and he considered that the gesture of the mutes was quite equal to ordinary spoken Chinese for communication. The development of the faculty of speech might lead to a greater development of the

[1] 1871, page 359.

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nerve organs of speech and hearing, while psychologically speech in man became the means of creating a greater number of verbal and other ideas and impressions. In gesture language hearing counted for very little, sight being used instead. Indeed there was ample field for experiment. It was difficult to conceive that animals did not speak from defect of attention, as deposed by the Professor. The cat or the dog exhibits the quality of attention in a high degree when watching for prey. Many animals are imitative of others, as, for instance, the cat in imitation of the dog. That animals communicate to some extent with each other must be admitted, but the subject is obscured by the assumption that speech must be the vehicle of communication. In the case of the two trained French pointers that were exhibited some thirty years ago before the Fellows of the Linnæan Society, when the Bishop of Norwich was President, their extraordinary performances were little guided by sound, but by signs, which they most sagaciously followed. Indeed, in the training of all performing animals direction by signs played a chief part. The mind of such animals as the dog must be the same as that of men, and of the same types psychologically, as the diagrams of the Professor showed it was physiologically, and the conditions depended as strictly on the relative development, as distinctly indeed as did the special development of the sense of smell. The distinction from men lay in that development, and in the registration of the verbal ideas of speech. Hence the more complex convolutions and details of the brain of the civilised man. The number of ideas registered or impressed did not depend on conscious thought, but also on unconscious thought, of which law he himself had been the first discoverer, though Dr. W. B. Carpenter obtained prior publication, and who named it unconscious cerebration. The subject of registration taken in hand for investigation by Professor Ferrier was a most important one, and one as obscure as any other portion of the subject, and it might be said as wonderful. To a certain extent the experiments and investigations of Professor Graham Bell and of Professor Hughes, as to the physical registration of sounds had of late years prepared the way for the study of the registration of ideas. A record of sounds could be made to reproduce those sounds, whether of speech or of music, at a later and distant period. He much regretted that the Anthropological Institute had hitherto taken so small a part in investigations, of the importance and value of which Professor Ferrier had that evening given convincing evidence. He regretted that the section for comparative psychology, of which he had been appointed chairman some years ago, had not been allowed to act, as members had unfortunately taken up the spiritualistic practices, to which Sir Crichton Browne had referred. What was wanted was observations in every branch of natural history on man and animals, for the animal physiologically and psychologically often supplied better illustrations than did the human being.

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The following paper was then read by the author:—

DESCRIPTION *of the* CEREBRAL HEMISPHERES *of an* ADULT AUSTRALIAN MALE.

By H. D. ROLLESTON, B.A., Scholar of St. John's College, Cambridge, Junior Demonstrator of Physiology in the University.

[WITH PLATE II.]

THIS communication is divided into three parts: (1) a few general remarks; (2) a detailed summary of the two hemispheres together; and (3) a description of the two hemispheres separately, with the depths of the fissures and sulci.

General Remarks.

The interest attaching to the study and examination of the brains of the lower races of mankind is briefly summed up in the phrase, "brain as an organ of mind." The problems that come before us are attractive, and, to a certain extent, admit of an answer. What material differences are there between the brain of an educated moral man and that of a sensual, animal-like savage? What correlation is there between the physical conformation of the cerebral hemispheres and the mental development of their owner?

This brain of an adult male Australian is of interest, then, from its being that of a primitive man.

The Australian came to the hospital at Adelaide, and on his death from peritonitis, his head was cut off and despatched in spirit by Professor Watson to Professor Macalister, to whose great kindness I am indebted for this opportunity of describing such an interesting brain.

On removing the brain it was found to weigh 31 ounces. A fresh brain if weighed before and after lying in spirit will be found to lose weight. Therefore, to obtain the weight in the recent condition, a certain percentage must be added to the actual weight of a brain which has been for some time in spirit. Marshall ("Phil. Trans.," 1864) adds seven twenty-fourths (the mean between one-third and one-fourth) of the weight obtained, and thus obtains the probable weight in the recent condition. Dr. Thurnum ("Journal of Mental Science," April, 1866) allows 29 per cent. for shrinkage in spirit.

The Anthropological Society of Paris adds 38 per cent. of the weight of the brain, and this result is more likely to approximate to the truth, for it must be remembered that about 80 per cent. of the weight of a fresh brain is due to water, the removal of

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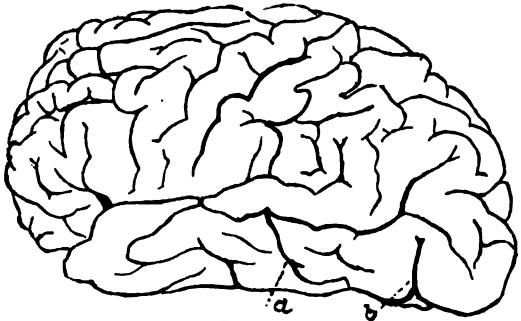

FIG. 1

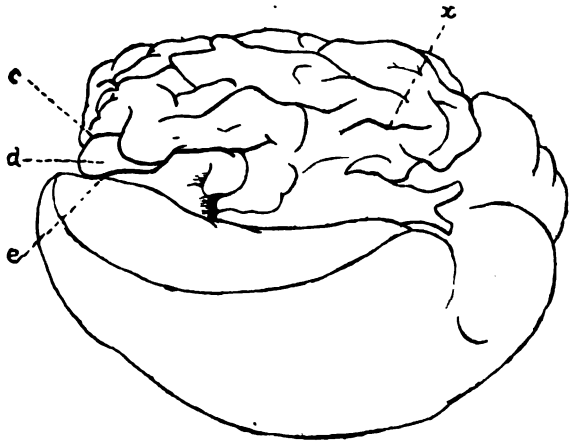

FIG. 4

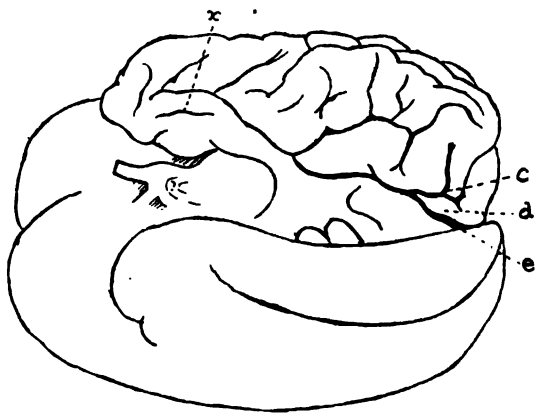

FIG. 3

BRAIN OF ADULT AUSTRALIAN MALE.

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which by alcohol accounts for the greatly shrunken condition of brains preserved in spirit.

Adding, then, 38 per cent. of the actual weight (31 ounces), the resulting weight of 43 ounces may be taken as representing, with a fair approach to accuracy, the weight of the brain at the time of death.

So far very few Australian brains have been weighed: the average of six was found to be 41 ounces, two of these brains, it should be noted, are those of females.[1]

The weight of the brain as a racial character is a subject which has attracted a good deal of attention, and as the result of colossal tables, it may be taken that the average European brain weight in males is 49 ounces, the average weight of the negro race is about 44·3 ounces,[2] which it will be seen is in excess of that of the primitive Australian.

The age of the Australian was unknown, but his face, which is preserved in the anatomical museum of the University of Cambridge, shows no sign of age, but appears to be that of a man about the prime of life.

If the convolutions of this Australian brain be compared with those of an average European brain the simplicity of the former is at once thrown into relief.

The convolutions of the frontal lobe, which is connected with intellectual processes, are seen to have a marked antero-posterior arrangement, to be four instead of three in number, and to be separate, not to join each other at every turn and twist, as is so notably the case in the described brains of many eminent men, and generally in the more civilised nations.

This simplicity of the frontal region is a point of importance, and may be considered as characteristic of a primitive brain. The frontal lobe being associated with higher faculties, it has been thought that the relation of amount of brain substance in front and behind the fissure of Rolando is of almost equal importance with the features mentioned above; but in this brain the relation of amount of brain substance in front and behind the fissure of Rolando was much the same as in an average European brain.

It has also been thought that the præ-auricular development of brain is of importance from the same point of view, but this requires working out.

[1] Dr. Thurnum ("On Weight of Brain," "Journal of Mental Science," April, 1866), gives the ratio of the cubic capacity of male Australian skulls to European as 85 : 100. Now, the average brain weight of an European, according to Welcker, is 49 ounces, and assuming that the relation between cubic capacity of the skull and brain weight is approximately true, the brain weight of Australians would be 41·6 ounces. It will be seen that this deduction agrees fairly well with the result obtained in the brain under notice by adding 38 per cent. of the actual weight.

[2] Thurnum: *loc. cit.*

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Throughout the convolutions this defined condition will be seen, and especially is this the case as regards the occipital lobe. Gratiolet, in his "Mémoire sur les plis cérébraux de l'homme et des Primates," insisted on the importance of the "plis de passage," or annectant gyri, in a differential diagnosis between them, and it was stated that in the Chimpanzee the first and second annectant gyri were depressed below the surface of the cortex, while the third and fourth remained in a superficial position.

Leaving this somewhat disputed point,[1] it is interesting to note in the human cerebral hemispheres under discussion that there is a tendency to depression and suppression of the third and fourth annectant gyri, while the first and second annectant gyri, though small, retain their superficial situation. In the brain of the Bushwoman described by Marshall ("Phil. Trans.," 1864), the annectant gyri were found to be small and single.

The anomalous fissures in the temporo-sphenoidal lobe (more marked on the left side) which tend to cut off the temporo-sphenoidal lobe, or more exactly, the middle and inferior temporo-sphenoidal convolutions from the third and fourth annectant gyri, and in turn to separate the third and fourth annectant gyri (or the cortex representing them) from the occipital lobe, are described in detail in the following pages and figured in Pl. II, figs. 1 and 2.

An anomalous transverse fissure which divides the postero-parietal lobule into an anterior and a posterior part is noteworthy.

Perhaps the most noticeable feature in this brain is the great reduction in size of the cuneate lobule and the great development of the parieto-occipital fissure, which is seen to contain the inner part of the cuneate lobe, and also part of the calcarine fissure. *Vide* Pl. II, figs. 3 and 4.

In the plates of Marshall's "Bushwoman," the cuneus is depicted as decidedly smaller than in an European brain, but bigger than in this brain; in his description of two idiots' brains it is described as being extremely small.

After noting the simplicity of the general arrangement of the convolutions it is interesting to observe that the angular gyrus is the most convoluted part of the hemisphere, and that the uncinate gyrus, another local habitation of special sense, is not only actually bigger in this shrunken brain than in an average European, but has a blind sulcus placed in it. (Figs. 3 and 4.)

[1] *Vide* Turner, "Proc. Royal Soc. Edinburgh," 1865-6. Rolleston, "Nat. Hist. Review," 1861. Article I.

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Detailed Summary of both Hemispheres.

Lobes.—Frontal, arrangement simple, tendency to have four longitudinal instead of the usual three frontal gyri is perhaps worth notice. The general absence of secondary gyri is with two other features a primitive condition.

The transverse frontal sulcus is well developed, but does not run into the horizontal limb of the fissure of Sylvius, as is often the case when well developed.

Orbital surface has its gyri simple and the sulci somewhat shallow, but asymmetrical.

Simplicity of orbital surface is characteristic of primitive brains.

The sulcus of Rolando is confluent with the longitudinal fissure.

The island of Reil is exposed on left side, this exposure is a condition found in primitive brains; thus Marshall ("Phil. Trans.," 1864) figures it in the brain of a Bushwoman, and quotes other examples. The exposure of the island of Reil implies that the surrounding gyri are ill-developed, Broca's convolution is thus shown to be defective, a point of interest in an Australian savage whose language is primitive as shown by its unclassified character.

Parietal.—The postero-parietal lobule is divided into (*a*) an anterior; and (*b*) a posterior portion, by a transverse sulcus which starts from the longitudinal fissure, 12 mm. behind the end of the calloso-marginal sulcus, and 25 mm. in front of the external parieto-occipital fissure.

The supra-marginal gyrus is cut off from the ascending parietal gyrus by the confluence of the interparietal sulcus and the horizontal limb of the fissure of Sylvius.

This continuity of the interparietal sulcus and the horizontal limb of the fissure of Sylvius is one of the many examples in this brain of the defined and separated state of the convolutions. The absence of a gyrus crossing the lower end of the interparietal sulcus and joining the ascending parietal and supra-marginal gyri, means less grey matter and therefore a lower potentiality.

A like condition is described by Gratiolet in a Bushwoman, and figured by Marshall on the left side of the Bushwoman's brain described by him ("Phil. Trans.," 1864).

The angular gyrus is the most convoluted part of the hemisphere. In Marshall's "Bushwoman" the angular gyrus was found to be decidedly defective.

Occipital.—The third and fourth annectant gyri, more especially on the left side, have but a slight connection superficially either with the occipital or the temporo-sphenoidal lobes.

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The external parieto-occipital fissure is small and bifurcated at its origin. In the Quadrumana this fissure is much more marked, and in human brains it has been seen stretching two inches transversely outwards (Turner, "Convolutions of Human Cerebrum," page 12). It is of interest to note in this primitive brain no approach as regards this point to condition in Quadrumana.

The occipital lobes completely hid from view the cerebellum when the encephalon was viewed from above, at one time this was thought to be an important point in estimating brain power in different types, but it has been shown to be quite destitute of any importance.

Temporo-sphenoidal lobe.—The most notable feature is the presence on both sides of two anomalous transverse sulci, which tend to cut off the middle and inferior temporo-sphenoidal gyri from the third and fourth annectant gyri, and also to limit superficially the connection between the third and fourth annectant gyri on the one hand, and the occipital lobe on the other.

As these anomalous sulci are not entirely symmetrical, it may be as well to describe them briefly.

On the left side the anterior of these two transverse sulci (*a*, *vide* fig. 1, Pl. II) arises from the inferior temporo-sphenoidal sulcus, 7 cm. behind the most anterior extremity of the temporo-sphenoidal lobe, and runs into the parallel sulcus, thus it cuts off the middle and inferior temporo-sphenoidal gyri from their natural continuation, the third and fourth annectant gyri.

The posterior transverse sulcus (*b*, fig. 1) arises from the lateral, 3·4 cm. behind the anterior one, and runs almost into the parallel fissure, thus tending to cut off the superficial connection between the third and fourth annectant gyri and the occipital lobe.

On the right side the anterior of these sulci (*a*, fig. 2) is represented by an oblique limb of the parallel sulcus directed backwards and downwards, which joins the inferior longitudinal sulcus at the point where the posterior transverse sulcus (*b*, fig. 2) arises. This point is 9·5 cm. distant from the most anterior extremity of the temporo-sphenoidal lobe. On both sides the posterior sulcus ends blindly, but it is much smaller on the right side.

Tentorial surface of the temporo-sphenoidal and occipital lobes.—The collateral fissure is asymmetrical.

The calcarine fissure, shallow posteriorly, deepens and first joining the internal parieto-occipital fissure then becomes submerged in it. (*Vide* figs. 3 and 4.)

Depending on the rapid junction of the calcarine and internal parieto-occipital fissures the cuneate lobe is very small.

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On opening the continuation of the internal parieto-occipital fissure the cuneate lobe is seen to lie submerged in it.

The fact that the uncinate gyrus was decidedly bigger than normal is noticeable. A blind sulcus ran in the anterior part of the uncinate gyrus from before backwards, and thus divided it into an internal and an external portion. (*Vide x*, in figs. 3 and 4.)

Right Hemisphere.

The greatest horizontal external circumference was 8 inches.

From the point where the sulcus of Rolando opened into the longitudinal fissure to the most anterior extremity of the frontal lobe measured 5 inches, while from the former point to the posterior extremity of the occipital lobe the distance was found to be $3\frac{3}{4}$ inches. These measurements are of importance as they roughly indicate what relation the frontal portion of the brain mass bears to the rest, the more acute the angle formed by the two fissures of Rolando opening into the longitudinal fissure the more highly are the frontal lobes developed, and presumably the higher the potential intellectual powers.

The horizontal limb of the Sylvian fissure was $3\frac{3}{4}$ inches in length, while the ascending limb measured 1 inch in length.

The external parieto-occipital fissure is bifurcated at its origin, both its limbs are three-quarters of an inch in length.

Lobes.—Frontal lobe.—The superior middle and inferior frontal gyri are all continuous anteriorly; the transverse arrangement is well shown. Tendency to be four instead of the usual three longitudinal frontal gyri.

There are no connecting bridges of cortical substance superficially.

The ascending frontal gyrus is joined superficially to the superior and inferior frontal gyri, its junction with the middle frontal gyrus is depressed, being deep in the transverse frontal sulcus.

The transverse frontal sulcus, though well developed, does not open into the horizontal limb of the fissure of Sylvius as it often does when well formed.

Orbital surface, an irregular and not very definite tri-radiate sulcus. The arrangement of the gyri is simple.

Parietal lobe.—The interparietal sulcus opens into the horizontal limb of the fissure of Sylvius (12·5 mm. deep at this point). It is not broken across at its anterior superior border by a bridge of cortical substance as it is on the left side.

The ascending parietal gyrus is connected in the operculum to the ascending frontal gyrus, but is quite cut off from the supra-

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marginal gyrus by the junction of the interparietal sulcus with the horizontal limb of the fissure of Sylvius.

The postero-parietal lobule is divided into anterior and posterior portions by a sulcus parallel to and 1 inch in front of the external parieto-occipital sulcus (half an inch behind the end of the calloso-marginal sulcus). This sulcus joins the interparietal sulcus. At the bottom of this anomalous sulcus a small gyrus rising to the surface is visible. The postero-parietal lobule is connected by a bridge to the angular gyrus and by the first annectant gyrus to the superior occipital gyrus.

The supra-marginal gyrus is quite cut off from the ascending parietal gyrus by the interparietal sulcus running into the horizontal limb of the fissure of Sylvius. In common with the angular gyrus it is connected with superior temporo-sphenoidal gyrus.

Angular gyrus is more convoluted than the rest of the hemisphere, it is connected to the posterior portion of the postero-parietal lobule, and to the superior but not the middle temporo-sphenoidal gyri.

The place where the second annectant gyrus would naturally come off is injured, owing to the fact that in the recent state there was a large Pacchionian body there, but it does not look as if there had been one there.

From the angular gyrus an isolated tongue of cortical substance, with sulci 8–12 mm. deep on each side of it, runs forward between (*a*) the connecting gyrus between the superior temporo-sphenoidal and the supra-marginal and angular gyri, and (*b*) the annectant gyri from the middle and inferior temporo-sphenoidal gyri.

Occipital lobe.—The three gyri are distinct.

Of the annectant gyri the first is well developed, as to the second, owing to injury it is doubtful where it ever existed, the third annectant gyrus has no superficial origin from the middle temporo-sphenoidal gyrus. There is no fourth annectant gyrus.

Temporo-sphenoidal lobe.—The parallel sulcus (*vide* fig. 2) bifurcates posteriorly, and thus encloses what represents the third and fourth annectant gyri, the lower limb of the fissure where it crosses the middle temporo-sphenoidal gyrus is very shallow at first, but deepens (12 mm.) as it approaches the lateral boundary where it joins the inferior temporo-sphenoidal sulcus. Across this shallow limb the middle temporo-sphenoidal gyrus is continuous into the third annectant gyrus.

The third annectant gyrus is almost divided into an anterior and posterior portion by a vertical sulcus (*b*, fig. 2) which starts from the inferior temporo-sphenoidal sulcus at the point where the lower obliquely directed limb of the parallel sulcus joins the inferior temporo-sphenoidal sulcus. This vertical sulcus is 12 mm. in length. [Compare its greater development on the left side.]

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Under surface of the temporo-sphenoidal and occipital lobes.—Gyri eminently antero-posterior in direction.

Collateral fissure is broken up by an irregular communicating bridge between the uncinate and inferior temporo-occipital gyri. It does not join the calcarine or the internal parieto-occipital fissures.

Calcarine fissure (*c*, fig. 4) arises posteriorly from a shallow bifurcated origin and runs first into and then becomes submerged in the internal parieto-occipital fissure, so that the internal part of the calcarine fissure does not open on the surface, but into the continuation of the internal parieto-occipital fissure.

The cuneate lobe (*d*, fig. 4) is very small owing to the junction of the calcarine and internal parieto-occipital fissures so close to posterior border of the occipital lobe, its greatest breadth is 12 mm. The cuneate lobe is submerged in the continuation of the internal parieto-occipital fissure. The cuneate lobe ends in a submerged tongue which runs across the continuation of internal parieto-occipital sulcus into the præcuneus.

The anterior part of the uncinate gyrus is divided into two portions, internal and external, by a simple blind sulcus (33 mm. long) which runs in an antero-posterior direction. This sulcus is 12 mm. in depth. This sulcus is marked with *x* in fig. 4.

The inferior occipito-temporal gyrus is more convoluted posteriorly than anteriorly, laterally it is well separated off from the inferior temporo-sphenoidal gyrus by the inferior temporo-sphenoidal sulcus.

Left Hemisphere.

The greatest horizontal circumference externally was $8\frac{1}{4}$ inches, while the maximum height was $3\frac{1}{4}$ inches.

Taking a bird's-eye view of the brain it is seen that the anterior extremity of the frontal lobe is $5\frac{1}{2}$ inches in front of the point where the fissure of Rolando runs into the longitudinal fissure, and that this latter point is $3\frac{3}{4}$ inches distant from the posterior extremity of the occipital lobe.

The fissures.—The horizontal limb of the fissure of Sylvius measured $3\frac{3}{4}$ inches in length, while the ascending limb was half an inch in length, and then bifurcated, at its origin a small portion of the insula was visible.

The external parieto-occipital fissure was bifurcated at its origin.

The interparietal sulcus opened into the horizontal limb of the fissure of Sylvius, it is bridged across at its anterior and superior border by a gyrus which joins the postero-parietal lobule.

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The parallel sulcus was far from normal, 2¾ inches from the anterior extremity of the temporo-sphenoidal lobe it is joined at right angles by a sulcus (*a*, Pl. II, fig. 1) which arises from the inferior temporo-sphenoidal sulcus. The second and third temporo-sphenoidal gyri are thus separated from the third and fourth annectant gyri. [Compare with so-called bifurcation of parallel fissure on right side.]

From this point the parallel fissure is continued posteriorly for 2 inches, it then bifurcates and tends to cut off the occipital lobe from its third and fourth annectant gyri. At the point of bifurcation the sulcus is deep, the limbs, however, are shallow.

The lobes.—Frontal lobe.—The superior middle and inferior frontal gyri are blended superficially at their anterior extremity, their arrangement is otherwise simple. It may be worth while noting that there is a tendency to four instead of usual three longitudinal gyri.

The ascending frontal gyrus is connected to the superior frontal by a large bridge, and to the inferior frontal gyrus by a small bridge, otherwise it is distinct and is not connected to the middle frontal gyrus.

Orbital surface, smoother than on the right side. The triradiate sulcus is fairly distinct.

The parietal lobe.—The ascending parietal gyrus is quite isolated except for two small bridges of cortex which connect it, the one to the ascending frontal gyrus, the other to the postero-parietal lobule.

The postero-parietal lobule is joined by a small bridge to the supra-marginal gyrus. Running transversely into the postero-parietal lobule from the longitudinal fissure is seen a sulcus, which is, however, not so well developed as the one on the right side, it does not run into the interparietal sulcus, and hence the postero-parietal lobule is not divided into two separate halves, anterior and posterior, as is the case on the other side.

The first annectant gyrus is small superficially.

The supra-marginal gyrus is cut off from the ascending parietal gyrus by the interparietal sulcus and is joined to the superior temporo-sphenoidal gyrus by a gyrus (half an inch across). As mentioned above, a gyrus breaks across the interparietal sulcus at its anterior superior border to join the postero-parietal lobule.

The angular gyrus is distinct and is better marked off than on the right side.

The second annectant gyrus is distinct.

In common with the supra-marginal, the angular gyrus is connected to the superior temporo-sphenoidal, but not to the middle temporo-sphenoidal gyrus.

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The occipital lobe.—The sulci separating the three gyri are distinct.

Of the annectant gyri the first is small while the second is plainly shown, the first annectant gyrus separates the external parieto-occipital fissure from a sulcus (1¼ inches long) directed transversely outwards.

The third and fourth annectant gyri are almost entirely cut off from the occipital lobe by a vertically directed sulcus (*b*, fig. 1), which arises from the inferior temporo-sphenoidal sulcus at the lateral boundary. This sulcus is prevented running into the posterior portion of the parallel sulcus by a narrow bridge of cortical substance, which is the whole superficial part of the third (and fourth ?) annectant gyri.

Temporo-sphenoidal lobe.—The superior temporo-sphenoidal gyrus is continuous with the supra-marginal and angular gyri, at about its centre, the superior temporo-sphenoidal gyrus is cut across by a shallow sulcus which connects the horizontal limb of the fissure of Sylvius and the parallel sulcus described above.

The middle temporo-sphenoidal sulcus, 2¾ inches from the anterior extremity of the temporo-sphenoidal lobe; this sulcus is cut across by a vertical sulcus running from the parallel sulcus to the inferior tempero-sphenoidal sulcus. This anomalous sulcus cuts off the middle and inferior temporo-sphenoidal gyri from their natural continuations, the third and fourth annectant gyri (*a*, fig. 1).

At a distance of 1½ inches behind this anomalous sulcus there is a vertical sulcus (*b*, fig. 1) (1 inch in length) which almost entirely cuts off the occipital lobe from the third and fourth annectant gyri (*vide* under occipital lobe).

The inferior tempero-sphenoidal sulcus begins in the anterior of these two anomalous vertical sulci and runs in the lateral boundary to the posterior extremity of the brain.

The under surface of the temporo-sphenoidal and occipital lobes.—The arrangement of the gyri is eminently antero-posterior in direction.

The collateral fissure bifurcates posteriorly, the internal limb joins the calcarine fissure.

The calcarine fissure (*c*, fig. 3) is bifurcated at its origin posteriorly, it then runs into the internal parieto-occipital fissure and becomes submerged in the continuation of that fissure. The cuneate lobe is very small, its greatest breadth is a quarter of an inch, it is also submerged for part of its extent in the continuation of the internal parieto-occipital fissure. The calcarine fissure is more submerged on this side than on the right side.

The uncinate gyrus is not very easy of definition posteriorly.

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owing to the fact that the collateral fissure is rather broken up. The uncinate gyrus is distinctly larger than normal, it measured a quarter of an inch more than that of a well developed European brain.

Anteriorly the uncinate gyrus is divided (as on the right side) into an internal and an external portion by a blind sulcus (marked *x*, fig. 3) directed antero-posteriorly. This sulcus (25 mm. long, 6 mm. deep) is not so big as the corresponding one on the right side.

The inferior temporo-occipital gyrus is well defined laterally by the inferior temporo-sphenoidal sulcus.

Depths of Fissures and Sulci.

The fissures and sulci were measured in several places. The number put down is an average. It may be well to say that the term fissure is reserved for the so-called complete sulci, viz., the Sylvian, parieto-occipital, calcarine, collateral, and hippocampal. All the rest are sulci.

		Right hemisphere.	Left hemisphere.
Fissures:			
	Sylvian	16·7 mm.	14·5 mm.
	Collateral	9·5	9·4
	Calcarine	14·3	12·7
	Internal parieto-occipital	17·4	19·0
	Hippocampal	7·9	9·5
Sulci:			
	Rolando	12·7	12·7
	Interparietal	13·7	12·7
	Transverse frontal	12·7	13·3
	Orbital surface	7·7	4·6
	Parallel	16·9	15·8
	Middle temporo-sphenoidal	9·5	12·7

Explanation of Plate II.

Fig. 1. Lateral view of left hemisphere of brain of adult male Australian. For explanation of sulci marked *a* and *b* in figs. 1 and 2, see text.

„ 2. Lateral view of posterior portion of right hemisphere of the same brain.

„ 3. Tentorial surface of left hemisphere of the same brain.

„ 4. Tentorial surface of right hemisphere. Reference letters to figs. 3 and 4; *c*, calcarine fissure; *d*, cuneate lobe; *e*, internal parieto-occipital fissure; *x*, an anomalous sulcus described in the text.

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The following paper was then read:—

On a FOSSIL HUMAN SKULL *from* LAGOA SANTA, BRAZIL.

By SÖREN HANSEN.

Abstract.

THE author gives good reason for believing that the skull in question, now in the Geological Department of the Natural History Section of the British Museum, having formed part of a collection purchased in 1844 from M. Chaussen, was originally in the possession of Lund, and is one of a large series obtained by that explorer in the cave known as Lapa di Lagoa di Sumadouro, the remainder of which are in the Copenhagen Museum. As the contents of this cave are much mixed, the age of any individual specimen found in it can not be determined with precision, but the author believes that this skull was contemporaneous with the now extinct mammalian fauna of the country. It has the same elongated form and general characters of the other Lagoa Santa skulls, characters which are repeated in the Botokudos, more nearly than in any other existing race.

MARCH 8TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last ordinary meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Social History of the Races of Mankind. Second Division. Papuo and Malayo Melanesians. By A. Featherman.

—— Annual Address to the Asiatic Society, Calcutta, February 2, 1887. By the President, E. T. Atkinson, B.A.

From the GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.—Annual Report, 1885.

From the ESSEX FIELD CLUB.—Transactions. Vol. iv, Part 2.

—— The Essex Naturalist. Nos. 1, 2.

From the ASSOCIATION.—Journal of the East India Association. Vol. xix, No. 2.

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From the SOCIETY.—Journal of the Society of Arts. Nos. 1788–9.
—— Proceedings of the Royal Geographical Society. March, 1887.
—— Proceedings of the Asiatic Society of Bengal. 1886. Nos. 8, 9.
—— Journal of the Asiatic Society of Bengal. Nos. 271, 272.
From the EDITOR.—Nature. Nos. 904, 905.
—— Science. No. 211.
—— Photographic Times. Nos. 283, 284.
—— Scientific News. Vol. I, No. 1.
—— Kosmos. Vol. I, No. 1.

The following paper was read by the author:—

STONE CIRCLES *near* ABERDEEN.

By A. L. LEWIS, F.C.A., M.A.I.

[WITH PLATE III.]

THE comparatively flat part of Scotland, which forms its most easterly angle, and is chiefly included in the county of Aberdeen, has, up to a recent period, contained a great number of stone circles, no less than twelve having existed within the memory of man in the one parish of Old Deer, in the corner of the angle already mentioned, about twenty miles north from Aberdeen, and within a dozen miles of the sea. Many, however, which remained so recently as to be marked on the ordnance map, have now disappeared; amongst them one which formerly stood on the Burgh Muir of Inverurie, about sixteen miles north-west from Aberdeen.[1]

There is a fine circle remaining at Tyrebaggar Hill, two miles from Dyce junction, and six or eight north-west from Aberdeen; it is 57 feet in diameter, and consists of eleven upright stones varying in height from 2½ to 9½ feet, standing on a bank of earth and stones, 2½ feet high, and 3 or 4 wide at the narrowest part; the two tallest stones are on the south side of the circle, and between them is a stone, 10 feet or more long, 6½ high, and 2 thick, which leans inwards, but had planted round it a number of small stones, 2 or 3 feet long, and a foot or so square, as if to hold it in its place. The group formed by this stone with its little supporters and the two high stones, one on each side of it, is obviously the principal feature of the circle, and a line taken almost due north from its centre cuts through the centre of the

[1] I mention this to prevent others from making a useless journey.

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circle and between two small stones set on the inner face of the bank to a single stone which is the most northerly of those forming the circle; of the other upright stones, three stand at irregular intervals forming the west side of the circle, gradually diminishing in size towards the north, and three in somewhat similar positions forming the east side; but, besides these latter three, there are, in the eastern half of the circumference, two other small stones, standing close together in such a position that a line taken from the front of the centre of the principal stone due north-east would pass between them; there is a tumulus about 375 feet away in this direction, but not, it would seem, in the exact line. Mr. McCombie Stewart, the station-master at Dyce, who should be consulted by any one visiting Dyce for scientific purposes, informed me that there was formerly a hole in the middle of the circle, which might be suggestive of the former existence of a kist; he also told me that there was supposed to be iron in the largest stones, and this seems very probable, for, on working my rough plans out at home, I found a disagreement in the compass-bearings. In this emergency I applied to Mr. McCombie Stewart, sending him a plan and asking him to verify my compass-bearings and some other particulars. He was so kind as not only to do this, but to get one of the Engineers of the railway to make an exact plan of the circle, showing the bearing of each stone from the centre. I am happy to be able to say, as showing the accuracy of my own methods, that my plan superposed upon his gave practically the same results.

In the letter accompanying the plan, Mr. McCombie Stewart, who is qualified to speak as a geologist, says, "We were unable to account for the peculiar ringing sound of the altar stone, unless it be caused by the flat shape of the stone, having its side firmly fixed in the ground, and the projecting part having a certain vibration—or if it were from the hard *heathen* substance of an iron nature—but one thing is certain, the stone is not of the same nature as those belonging to the neighbouring quarry." I may here mention that Mr. John Stuart[1] says of a similar circle at Ardoyne, Aberdeenshire (now nearly destroyed), that the oblong stone and the two upright stones flanking it were of Bennachie granite, while the rest of the stones were of gneiss. Here are two more instances of the custom of selecting stones from some other locality for the principal stones of a circle. Returning to the Dyce circle I ought to mention that there are two or three small stones (say 3 feet × 2 feet × 2 feet) in a plantation to the south-east, but whether thrown down from the

[1] "Sculptured Stones of Scotland" (Spalding Club).

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circle or not, I cannot say. A cairn in the field to the north-east was, Mr. McCombie Stewart says, removed in 1886.

Mr. Christian Maclagan, in his "Hill-forts, Stone Circles, &c., of Ancient Scotland," published in large quarto at Edinburgh in 1875, gives a plan of the Dyce circle, which shows an inner circle of small stones close together, of which the two that I have mentioned were doubtless a part. He also shows three stones outside the larger circle, as though forming part of an outer concentric circle, they are probably those which I have mentioned as being in a plantation to the south-east, but I do not think there was any circle surrounding that which now exists. Mr. Maclagan's book appears to have been published at considerable expense to support a view of which he probably has a monopoly, namely, that all stone circles are the last remains of circular buildings of unmortared masonry of the *broch* type, and that the banks of small stones in which the upright ones are set and held fast are only the remains of foundations. He also thinks that the oblong stones have in every case been laid flat on the short pillars surrounding them, and have been the lintels of entrances, and he delineates a "restoration" of a circle at Aquhorthies, near Inverurie, showing the oblong stone in this position with a huge mass of uncemented masonry resting upon it. There can, however, be little doubt that all these oblong stones were originally set upright on edge, and that where they lean or are flat it is because they have slipped. Mr. Maclagan speaks of them as "south-west stones," whereas they are not at the south-west, but at the south of the circles—perhaps he forgot the westerly variation of the compass. Mr. Maclagan considers his theory to apply to Stonehenge, which he figures "restored" with an enormous tower embedding and surmounting it, and to Avebury, the great circle of which, 1,300 feet in diameter, he takes to have been the last remains of an immense circular wall, larger than the bank which still surrounds the site, and which is as large as a railway embankment. The utter improbability of the entire disappearance (especially in places where stones are a nuisance) of such tremendous quantities as Mr. Maclagan suggests the former existence of might, but for his nationality, lead us to suppose that in propounding his theory he was perpetrating a practical joke almost as heavy as his masses of masonry would have been had they ever existed; at the same time, it may be admitted that some very small circles may possibly have had some such origin as he suggests. It is a great but common mistake to assume that all circular arrangements of stones must necessarily have had the same origin and use.

About six miles south from Aberdeen and two west from

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Portlethen station, four circles are marked on the ordnance map—two on each side of the hill of Auchorthies. These four circles were described in the "Proceedings of the Society of Antiquaries of Scotland" (June, 1863, Vol. V, page 130), by Mr. Alexander Thomson, who, with some others, dug inside them on 30th September, 1858. Of the most northerly of these circles—the Badentoy circle—four stones remain in the middle of a field, a wall has been built round them, no doubt from the fragments of other stones belonging to the circle, a mode of preserving rude stone monuments which, however well-intentioned, does not commend itself to the archæologist. I should not be surprised if these four stones have themselves been removed inwards from their original position, since they now stand at the four cardinal points *by compass* from a central point, the distance between the north and south pair being only 28 feet, and that between the east and west pair only 24 feet, the diameter of a small inner circle, for which 3 feet stones were generally used, while these stones are from 4 to 7 feet high, the size of those used for outer circles. Mr. Thomson, indeed, says that he found only three stones standing, and it would seem, on a comparison of the measurements he gives, that the most northerly stone (which is the smallest and most untruly placed) has been put in its present position, and the wall built since he visited it (perhaps in 1865, when the ordnance survey was made). Mr. Thomson found that this circle had been excavated before, some half-calcined bones and morsels of wood charcoal being left. The second circle from the north—the "King-causie" circle—appears to have been entirely destroyed, two or three very small stones and some heaps of fragments, which may perhaps have belonged to it, only excepted. In 1858, Mr. Thomson found here three concentric rings of small stones from 2 to 3 feet high, the outer circle 70 feet, the middle circle 56 feet, and the inner circle 12 feet in diameter. The latter was found upon digging to be full of black mould, fragments of bones, and wood charcoal, and in five places fragments of coarse earthenware vases. As he says this circle was so inconspicuous that one might pass within a few yards of it without noticing it, it is possible that I did not get to the right spot, and that there may be more of it left than I have said. Of the most southerly circle—the Bourtree-bush circle—four stones remain upright and four prostrate, besides quantities of very small fragments, the stones which remain are about the same size as those at Dyce, and the diameter of the circle would appear to have been about 90 feet. Of these four circles (which do not seem to have had any connection with each other) only the second from the south—the Auchorthies circle—is in such preservation that its

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plan can be clearly made out, and of this bad weather and want of time prevented my taking fully detailed measurements. I am able, however, to say that, like the Dyce circle, it has an oblong stone (9 feet long, by 4 feet high, by 1½ feet thick), standing on edge at the south side, facing a trifle west of true north, which had an upright stone on each side, one of these remains, and the hole in which the other stood is plainly visible. The circle was formed of perhaps a dozen other stones, none of which were more than 6 feet high, its diameter seems to have been 65 feet from north to south, and 76 from east to west. There was a second circle about 12 feet inside the outer one, it consisted of stones measuring on the average 3 feet high by 3 feet by 1 foot, and standing close together. Close to the centre of these concentric circles and in the direct north and south line are three small stones (2 feet high by 1¾ foot by 1 feet) close together, perhaps forming part of a small interior circle or kist. The ground inside all these three circles is a foot or two higher than that outside. Mr. John Stuart says that in one of them a kist, 3 feet long and 1½ wide, containing ashes, was dug up between the outer and second circles. This, however, was obviously a mere casual interment.

The two last-mentioned circles do not appear to have been much interfered with since Mr. Thomson explored them in 1858. He does not seem to have found anything in the Bourtreebush circle, but on turning up the area of the innermost circle at Auchorthies, he found charcoal, half-calcined bones, black unctuous earth, and small fragments of a vase, and he was told someone had dug there fifteen years previously and found nothing.

Mr. Maclagan seems to me to have mixed up his recollections and sketches of the circles at Aquhorthies, near Inverurie, and Auchorthies, near Aberdeen, which latter I have just been describing, and he says of the most southerly circle at Auchorthies, that Chalmers at the beginning of the century found sixteen stones, but that he himself going in 1873 found only one, but saw the places where the other fifteen had been, each with a little heap of stones round it, and argues from this the great rapidity with which these monuments have been destroyed, and the probability of the removal of his imaginary masses of masonry within the historic period. I, going in 1885, however, found, as I have said, four stones upright and four fallen, so that I cannot but think that Mr. Maclagan must have missed this circle, and found his way instead to a standing stone shown on the ordnance map about half a mile further south. Moreover, though Chalmers gives the description attributed to him, he quotes it (with acknowledgment) from a much older one, which I am now about to quote also.

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A letter from the Reverend Dr. James Garden, Professor of Theology in the King's College of Aberdeen, to — Aubrey, Esquire, which contained, amongst other things, a description of the two circles last referred to, was read before the Society of Antiquaries of London, on the 4th December, 1766,[1] and from it I have made the following extracts:—

"Honoured Sir,

"Yours dated at London, April 9th, 1692, came to my hands about ten days after.[2] . . . .

"What the Lord Yester and Sir Robert Morray told you long ago is true, viz., that in the north parts of this kingdom many monuments of the nature and fashion described by you are yet extant. They consist of tall, big, unpolished stones set upon end and placed circularly, not contiguous together but at some distances; the obscurer sort (which are the more numerous) have but one circle of stones standing at equal distances; others towards the south or south-east have a larger broad stone standing on edge, which fills up the whole space between two of those stones that stand on end, and is called by the vulgar the altar stone; a third sort more remarkable than any of the former (besides all that I have already mentioned) have another circle of smaller stones standing inside the circle of the great stones; the area of the three sorts is commonly (not always) filled with stones of sundry sizes confusedly cast together in a heap. Two of the largest and most remarkable of these monuments that ever I saw are yet to be seen at a place called Auchincorthie, in the shire of Merris, 5 miles distant from Aberdeen,[3] one of which has two circles of stones, whereof the exterior circle consists of thirteen great stones (besides two that are fallen and the broad stone toward the south) about 3 yards high above ground, and 7 or 8 paces distant one from another, the diameter being 24 large paces; the interior circle is about 3 paces distant from the other, and the stones thereof 3 feet high above ground.[4] Toward the east from this monument, at

[1] Archæologia, Vol. 1, page 312.

[2] I am informed by Professor Geddes, of the University of Aberdeen, that the Rev. Dr. James Garden was Professor of Divinity there from 1681 until he was dismissed for refusing to submit to William III, and that his successor was installed in 1698.—A. L. L.

[3] "Merris" is Mearns or Kincardine. Chalmers, quoting this account in "Caledonia," says that Achen-corthie signifies the "field of the circles," on the ordnance map it is called Auchorthies, and I find there is also a place called Aquhorthies, near Inverury, where a circle still exists, or did till very lately. Gough, in his edition of Camden's Britannia, 1806, also quotes this account, but both authors have committed errors in transcribing and abridging it.—A. L. L.

[4] This is apparently the most southerly of the four circles I mentioned, which is now nearly destroyed; and this old description is therefore very valuable, not only as showing what it was like, but also that it was like the others; Dr. Garden however understates the diameter, as a comparison of his own figures shows.—A. L. L.

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26 paces distance, there is a big stone, fast in the ground and level with it, in which there is a cavity, partly natural and partly artificial, that will contain, as I guess, no less than a Scotch gallon of water, and may be supposed to have served for washing the priests, sacrifices, and other things esteemed sacred among the heathen. The other monument, which is full as large if not larger than that which I have already described, and distant from it about a bowshot of ground, consists of three circles having the same common centre; the stones of the greatest circle are about 3 yards, and those of the two lesser circles 3 feet, high above the ground, the innermost circle 3 paces diameter, and the stones standing close together. One of the stones of the largest circle on the east side of the monument hath upon the top of it (which is but narrow and longer one way than the other) a hollowness, about 3 inches deep, in the bottom whereof is cut out a trough, 1 inch deep and 2 inches broad (with another short one crossing it) that runs along the whole length of the cavity and down by the side of the stone a good way, so that whatsoever liquid is poured into the cavity upon the top of the stone doth presently run down the side of it by this trough, and it would seem that upon this stone they poured forth their *libamina* or liquid sacrifices; there is also another stone in the same circle and upon the same side of the monument (standing nearest to the broad stone that stands on edge and looks toward the south) which hath a cavity on the upper end of it, it is considerably lower on one side and will contain about one English pint, at the first sight it seemed to me to have been made for burning a lamp, but, when I considered that it was *sub dio*, I found it could not be for that use, afterwards observing it more narrowly I perceived that it was cut after the fashion of the cavity in the other stone already described, albeit not so clearly and distinctly, and that there is a natural fissure in the stone by which all the liquor poured into the cavity runs out of it down by the side of the stone to the ground.[1]

"The general tradition throughout this kingdom concerning these kind of monuments is that they were places of worship and sacrifice in heathen times, few of them have particular names. In this part of the country they are commonly called *standing*

[1] The next stone to the broad stone is usually one of the highest in the circle, and according to the Rev. Dr. would have been three yards high, in which case he would hardly have seen the cavity at the top. This description in every other respect agrees with the second circle from the south, where the highest stone now remaining is six feet high, so that an error has evidently been committed, either in his original letter or in copying it. The stone next to the altar stone on the east has now been removed, but its fellow is about five feet high.—A. L. L.

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stones, and in the Highlands of Scotland, where the Irish tongue is spoken, they call them *caer*, which signifies a throne, an oracle, or a place of address, as I am informed by a judicious person here, who understands that language, and was lately in those parts where, he says, they have such a superstitious veneration for these monuments that they will not meddle with any of their stones or apply them to another use; and being lately at Auchincorthie, I was told that a poor man who lives there having taken a stone away from one of the neighbouring monuments above described and put it into his hearth was, by his own relation, troubled with a deal of noise and din about his house in the night time until he carried back the stone unto the place where he found it.[1]

"Some of them are called chapels . . . . others are called temples . . . . and those two whereof I have given you a particular description are called by the people that live near by 'Law Stones,' for what reason I know not, and 'Temple Stones.'[2] They have a tradition that the pagan priests of old dwelt in that place, Auchincorthie, and there are yet to be seen at a little distance from one of the monuments standing there the foundations of an old house which is said to have been their Teind Barn; they report likewise that the priests caused earth to be brought from other adjacent places upon people's backs to Auchincorthie for making the soil thereof deeper, which is given for the reason why this parcel of land, though surrounded with heath and moss on all sides is better and more fertile than other places thereabouts.[3] All these names (except the first) confirm the general tradition concerning these monuments, that they were places of worship, and some of them, as that of the 'temple' and 'temple stones,' declare that they have not been erected by Christians, or for their use, which their structure also doth sufficiently demonstrate besides. . . . . Old Aberdeen, 15th June, 1692."

[1] It is much to be wished that all destroyers of rude stone monuments and especially those of Avebury, had been plagued in the like or some worse manner, and, if the Welsh bards who are coming to London this year have had handed down to them any particularly awful Druidic form of curse, warranted to wear in the next world as well as in this, I would suggest that they should immediately put it in force against all circle-destroyers, past, present, or future. This superstition would, however, have assisted to prevent the removal of Mr. Maclagan's imaginary masses of masonry, and therefore diminishes the very slight possibility of their ever having existed.—A. L. L.

[2] The editor of Archæologia notes to this:—"From barrows and heaps of stones being intended for sepulchres they are called Lows in Staffordshire (and he might have added Derbyshire) and Lawes in Ireland," (Antiq. Corn., 1st Ed., p. 200).

[3] This tradition, which seems rather absurd at first sight, may have arisen from the custom which we know to have prevailed of bringing earth and stones from a distance to form special parts of tumuli and circles.—A.L.L.

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This date and these last sentences are of the very greatest importance for this reason :—Mr. John Stuart and other writers of what I may call the anti-Druidic school have advanced the propositions that "the theory which ascribes to stone circles the purpose of temples or courts is modern and unsupported by facts." . . . . "In the seventeenth century a theory was proposed by two English writers, John Aubrey and William Stukeley, which ascribed the great circles of Stonehenge and Avebury to the Druids as their temples, and since their day all stone circles have been called Druidical circles."[1] These propositions must, however, be now and for ever abandoned in view of the proof contained in this letter, printed in Archæologia 120 years ago, but written nearly 200 years ago to Aubrey himself, who was the earlier of the two writers (for Stukeley lived not in the seventeenth but in the eighteenth century), that at that time the "general tradition" concerning the Scotch circles was that they were "places of worship and sacrifice in heathen times."

It is true Dr. Garden uses the word priest instead of Druid, and says that he finds no mention of Druids, but he himself evidently looks upon the priests in question as Druids, and we know from other sources that the Druids were the priests of the Celts and would tolerate no rivals.

In former papers on stone circles I have insisted very strongly on the presence of a special reference to the north-east, and have drawn various conclusions therefrom, but, as regards the two comparatively perfect circles I have described (although in the Dyce circle there is an indication of a north-easterly reference) the main direction is north and south, and not north-east and south-west; if this were the only difference between these circles and those of southern Britain it might fairly be said that what I had previously pointed out about the north-east was a mere collection of accidental coincidences, but there is another most palpable difference which, when brought to notice, cannot fail to strike the most casual observer; the oblong stone, flanked by two upright stones, which is the principal feature in these circles appears, so far as I have yet been able to discover, nowhere except in the Aberdeen district, where on the other hand it is almost universal. It is true that, though I visited six sites, I only found two circles sufficiently well preserved to draw any conclusions from, but I am fortunately not entirely dependent on my own observation. The Rev. James Peter, Incumbent of Old Deer, read a paper on the subject before the Anthropological

[1] Transactions of International Congress of Prehistoric Archæology, 1868, and Sculptured Stones of Scotland, Vol. 2.

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Section of the British Association at Aberdeen, at which I was present; the substance of this paper is published with plans and illustrations in the Proceedings of the Society of Antiquaries of Scotland, 1884–5, and I exhibit tracings from those plans and illustrations, showing this arrangement of one oblong and two upright stones in three circles, and from the illustrations to Col. Forbes Leslie's "Early Races of Scotland," showing the same arrangement in three other circles and from Mr. Maclagan's book before quoted showing it in four other circles which, added to the two I have myself described to you, make twelve circles in which I can prove pictorially that the oblong stone with its two supporters occurs, though, as a matter of fact, it has been much more general. Mr. Peter stated that in fifteen circles he was acquainted with, the "altar," as this oblong stone is popularly called, was at the south, and that in two circles it faced north-east; at the Strichen circle the "altar" is at the north instead of the south, and at Sinhinny it appears to be at the west; at the "White Cow Wood" circle there is no "altar," but the largest stones are at the south and a dolmen occupies the north-east corner of the circle. It is, however, clear that the "altar" and its supporters were prominent in most of the circles of the Aberdeen district, but I cannot find, either from friends of whom I have enquired, or from books which I have consulted, that they occur anywhere else; even in what I may call the Inverness district, not fifty miles distant, but divided from the Aberdeen district in places by mountains more than four thousand feet high, it seems that, though there are concentric circles, there are no "altars."[1]

The circle in England which, as I think, most resembles those near Aberdeen and Inverness is that at Gunnerkeld in Westmoreland, described by me in the "Journal of the Anthropological Institute" (November, 1885, Vol. XV, page 167), and pronounced by Mr. Dymond and myself to be in all probability a tomb rather than a temple, but it has nothing like an "altar" stone. Certain structures known as "Giant's Graves" in the north of Ireland, and described by Dr. Sinclair Holden in "Anthropologia," had some points of resemblance in principle, but still more of difference in form; they consisted of a long covered burial chamber running from north-east to south-west with a separate covered niche, open to the air and facing outwards at the south-west end of it, which might have been a sort of altar place; these were surrounded by an oblong wall of stones forming a promenade round the chamber, like that between the outer

[1] See for example Mr. Fraser's "Descriptive Notes on Stone Circles of Strathnairn and neighbourhood of Inverness," in Proceedings of Society of Antiquaries, Scotland, 12th May, 1884.

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and inner circles in Scotland, and Dr. Sinclair Holden remarks that the covered niche never occurs without this surrounding wall of stone; notwithstanding the difference in shape, therefore, I am inclined to regard the Aberdeen circles as having more affinity to the "Giant's Graves" than to the English circles to which it has always been sought to ally them. Considering the relative position of this part of Scotland it might have been thought that the Aberdeen circles and "altars" had been constructed under a Norwegian influence, but I cannot find that any such arrangement of stones exists in any part of Scandinavia; it may be that this peculiar form of circle was developed by some tribe or tribes cut off from the rest of the world by the sea, the mountains, and hostile populations; certain it is that different countries have their specialities in rude stone monuments as in other things, and that the use of unhewn stones is no proof of the intercourse or common origin of the users unless they be used in some more markedly similar manner than a mere placing of them in circles. In the oblong "altar" stone, flanked by two upright stones we have a very obvious difference, which, combined with the absence of any such marked reference to the north-east as exists in the circles of southern Britain, might almost lead us to suppose that the circles of the two countries were constructed by a different set of people, and perhaps for a different purpose, but I am not aware that this has been previously pointed out, most writers seeming rather to dwell upon the points of resemblance between the circles of all countries. From their great number and close contiguity, and from remains found in them,[1] it might seem more likely in the case of the Aberdeen circles than in that of most English circles that their primary object was sepulchral, but the traditions already mentioned and the avenue between the inner and outer circles are suggestive of periodical processional or other rites culminating in some special observance before the so-called "altar" stones. Mr. John Stuart and Mr. Fergusson, though differing as to their date and origin, both maintain the Scotch circles to have been purely sepulchral, ignoring the common and, as I have shown, long-standing traditions concerning them, and, having established this to their own satisfaction, and finding in southern Britain other circles, with differences of construction of which they take no notice, they conclude that

[1] See list in "Sculptured Stones of Scotland," edited by John Stuart, Esq., for the Spalding Club. With special regard to the number and contiguity however Colonel Forbes Leslie says "several stone circles, close together, even intersecting each other, and lately erected to the same object of worship—viz., to Vital—may any day be seen in secluded rocky places near towns and villages of the Dekhan in India. Near Poonah they are extremely common."—"Early Races of Scotland," page 214.

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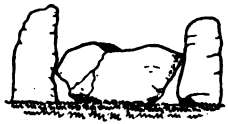


STRICHEN. *(Rev. J. Peter.)*

MIDMAR. *(Col. Forbes Leslie.)*

ARDLAIR. *(Col. Forbes Leslie.)*

SINHINNY. *(Col. Forbes Leslie.)*

LOUDON WOOD. *(Rev. J. Peter.)*

"KIRK O' TOUGH." *(C. Maclagan.)*

"KIRK O' KEIG." *(C. Maclagan.)*

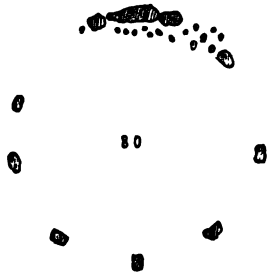
AUQUORTHIES, INVERURY. *(C. Maclagan.)*

AIKEY BRAE. *(Rev. J. Peter.)*

AUCHORTHIES, ABERDEEN. *(A. L. Lewis.)*

DYCE. *(A. L. Lewis.)*

SKETCHES AND PLANS OF "ALTAR STONES" IN SCOTCH CIRCLES. (ABERDEEN DISTRICT.)



OLD RAYNE. *(C. Maclagan.)*

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those circles also must be purely sepulchral, Mr. Stuart, in particular, saying that unless some other difference than that of size can be shown to exist he must decline to admit any difference of purpose. I have now shown two other differences to exist between the circles near Aberdeen and those of England and Wales, namely, the oblong "altar" stone at the south, present in the Aberdeen district but absent in England and Wales, and the north-easterly references, indicative of sun-worship, and sometimes of mountain and phallic worship, which are prominent in England and Wales, but only subsidiary in the Aberdeen district.

Explanation of Plate III.

Two plans and ten sketches of "Altar Stones," showing the arrangement of an oblong stone with two supporters peculiar to the Aberdeen district, copied from illustrations to Mr. Maclagan's "Hill Forts, Stone Circles, &c., of Ancient Scotland;" to Colonel Forbes Leslie's "Early Races of Scotland;" to Rev. J. Peters' paper in the Proceedings of the Society of Antiquaries of Scotland; and from original sketches by the author.

DISCUSSION.

Dr. JOHN EVANS complimented Mr. Lewis on the care he had bestowed in examining and describing these Scottish monuments. There were, he thought, two points especially worthy of notice. One, the presence of stones of a kind that must have been brought from a distance, and that were used for the so-called "altar stones." Analogies in this respect might be found among southern stone circles. The second point was the extent of the destruction of these stone circles within comparatively recent times. He suggested that the attention of General Pitt Rivers, as the Inspector of Ancient Monuments, should be called to these Aberdeenshire circles. As an illustration of the employment of concentric circles in places of worship, he mentioned the church of San Stefano at Rome, which is of early date, and the arrangement of which in three concentric circles may have been suggested by some far earlier monument. He regarded the question as to whether the Scottish priests referred to by the author were Druids or not, as involving many difficulties which could not be summarily discussed.

Miss BUCKLAND inquired whether Mr. Lewis had found any cup-markings or basin-like hollows in the stones he had examined, especially on the so-called "altar stones." Referring to the position of the circles as regards the cardinal points, Miss Buckland called Mr. Lewis's attention to the abstract of Mr. Peter's paper read at the Aberdeen meeting of the British Association, in which, according to the author, there would seem to be a special arrangement of

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the "altar stone" on the south meridian in fourteen cases out of seventeen, whilst in the three exceptions it faces north-east, and of one circle Mr. Peter proved by measurements that the table stone of the dolmen standing in the centre was so placed as to face the point of the horizon in which the sun rises on Midsummer dav.

Dr. GARSON remarked in reference to the observations that Mr. Lewis had made regarding the stones comprising the circles in Aberdeenshire not being obtained apparently from the neighbourhood of the circle, that the stones composing the circle of Stennis, in the Orkney Islands, appear to have been brought from a quarry situated in the hills between Quoyloo and Marwick, about eight miles or more distant. In that quarry there are several stones lying on their sides corresponding closely in size and form to those of the circle. There is no quarry near the circle known from which they could be taken. The question naturally arises how the erectors of these ancient circles, with probably only rude mechanical appliances at their disposal, managed to transport these large stones, which frequently measure from 18 to 20 feet long, by 3 to 4 feet broad, and 9 inches to a foot thick, so great a distance over rough hilly ground to their present resting place.

Mr. BOUVERIE-PUSEY remarked that he was much surprised that the author of the paper seemed to countenance the idea that stone circles had something to do with the Druids. We had long and detailed notices of the Druids and of their customs in ancient authors with no mention of stone circles, too characteristic a feature surely to be omitted, and he believed that the notices of Druidism found in the old literature of Ireland were equally silent on this point. It was his opinion that if stone circles were temples at all they must have been the temples of some pre-historic period.

Mr. HYDE CLARKE, after stating that it was by such investigations as those of Mr. Lewis that certain data would be obtained for the determination of the epoch and purposes of the monuments, observed that it was assumed the stones in a circle must be stationed equally. He thought it well worthy of consideration whether intervals were not to be found as in pre-historic and existing arrangements throughout the world. In the plans before them the numbers were twelve, thirteen, sixteen and twenty, numbers commonly found. Now in a circle of twelve it might happen that it was divided three, four and five, or six and six, or seven and five. It was possible that the stones of the Giant's Grave were to be taken not as thirteen, but as twenty-six, or twice thirteen. He should like to see some facts that Celts or Druids had anything to do with the stone monuments otherwise than making burials in them. Aberdeenshire had traces of Iberian occupation.

Mr. LEWIS said in reply to Miss Buckland that he had not noticed any cup-markings or hollows in any of the stones, but it was possible some might have escaped his observation; he thought, however, the cavities described so minutely by Dr. Garden were

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very likely natural weatherings. Referring to Dr. Hyde Clarke's suggestion he had, he said, at different times considered the number and arrangement of stones in circles, but had never been able to formulate any rule, or come to any satisfactory conclusion. He thought it not unlikely that the erection of stone monuments was begun by a pre-Celtic race, but the evidence of the objects found in them showed that they had been used and he believed constructed down to if not beyond the commencement of the Roman occupation. It was perhaps, surprising that the traditions mentioned by Dr. Garden, and similar though fainter traditions in other places, should have survived, as they must have done, for more than a thousand years: but to suppose that they had been handed down as traditions from a pre-Celtic period, say three thousand years ago, was surely too much to ask anyone to believe. There was no doubt a want of direct evidence as to the use of stone monuments by the Druids, but that proved nothing, and he thought that such evidence as they had showed that the stone monuments were used by the Celts with the approval of their Druidic priesthood. The question of the transport of large stones had been dealt with by him in a paper on the "Devil's Arrows" published in the Journal of the Institute in November, 1878. He was much indebted to Dr. Evans for the reference to the church of San Stefano at Rome.

On PALÆOLITHIC IMPLEMENTS *from the* DRIFT GRAVELS *of the* SINGRAULI BASIN, SOUTH MIRZAPORE.

By J. COCKBURN, Esq.

DURING Christmas week, 1883, I was partially rewarded for a long and tedious journey in a country without water and without roads, by discovering a locality where palæolithic implements abounded. So numerous were they that I collected in three days five hundred implements, besides a vast collection of rude flakes and spalls amounting in all to twelve sack loads.

The implements themselves are undistinguishable from those found by Messrs. Foote and King in the laterite of the North Arcot district in Madras; those by Mr. Hacket in the Narbadda gravels; those of Mr. W. T. Blanford from Hyderabad; and those of Mr. Ball from Orissa. They, however, differ in being composed of a great variety of rocks, while all those hitherto found were either quartzite or vein quartz.

The majority of the implements in the Hinoutee locality were found on undulating ground, covered with shingle, over a frontage of a mile and a half along the south bank of the Balliah Nadi. The width of the exposed surface of Talchirs along this frontage varies from a quarter to half a mile, and between the villages of Hinoutee and Amaharee.

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The first implement was discovered where the main track to the corundrum mines of Pipra crosses the Balliah Nadi.

Here it lay on the denuded surface of black Talchir needle shales, mingled with shingle, boulders, and other *débris* of what was once a gravel bed. The majority of the specimens were found in these positions.

Here and there the Talchirs have been cut into shallow ravines and the sides and bottoms of all gullies are strewn and often piled with heaps of boulders and shingle.

These boulders present a remarkable variety of colour, green,[1] white, red, purple, and black predominating. The Talchir boulder bed is also exposed at most points, and the coloured boulders and gravel in question have been partly derived from the decomposition of the needle shales in which the boulders are embedded and partly from a superincumbent gravel bed to be described further on.

This gravel bed has yielded implements from Hinoutee to Mahree[2] on the Bichee Nadi, or over a strip of country twelve miles long from east to west, and four miles broad.

A slight sketch of the physical character of the country will here be necessary.

The Singrauli Basin in South Mirzapore is the only locality in the North-West Provinces where rocks of the Gondwana system occur.

Like other such areas it may be described as a basin-shaped depression in older metamorphic rocks (gneiss and jasperous quartzites) occupied by Talchir and Damuda formations, but the latter in British Singrauli have been almost entirely removed by denudation except six or eight miles of a range which forms the north-west boundary of this corner of Singrauli, extending from Aundhi Hill, lat. 24° 12′ 21″, long. 82° 43′ 51″, to Kota Puchum.

This range is composed of a characteristic soft, gritty sandstone, Barakar, which occasionally passes into a feeble conglomerate containing oval white and green quartz pebbles from half an inch to two and a half inches in diameter.

It is largely worked into millstones by aboriginal Bhuyars[3] who block the stones into shape with small iron axes.

The cultivated portion of Singrauli forms an alluvial depressed plain, on the margin of a great coal basin, about 12 miles long and four in width. The alluvium is for the most part modified

[1] No marks of polishing or scratching were noticed on the boulders from the Talchir boulder bed, although I disinterred several boulders on purpose, and carefully examined them.

[2] No more than half a dozen specimens were found at Mahree.

[3] Some of the Bhuyars have a close resemblance to Australian aborigines in feature and form of skull. But here and there individuals with Aryan features were noticed. These people continue to use bows and poisoned arrows.

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regur under rice. Except in ravines in the vicinity of the Reyr River,[1] this alluvium is no where thick, and may be said to uniformly overlie a compact Talchir sandstone. I had exceptional opportunities for testing the depth of this alluvium at points where no exposures occur, owing to the official enquiries I was required to make regarding wells. The alluvium varies from eight to 20 feet in depth at various points between Hinoutee and Mahree, and while the Talchir sandstone forms a stratum nearly impervious to water, it is a serious obstacle to well-sinking. The wells only contain from three to four and half feet of water but this supply is pretty constant.

In ravines in the vicinity of Gharwar Gaon the alluvium is in places 50 feet thick; clay cliffs 30 feet high occur. Below one such cliff I obtained the fossil tibia and portions of the femur of the left pelvic limb of a large *Bos*. These bones were undistinguishable from those of an adult male *Bos gaurus*, with which I compared them in the Indian Museum.

As might be expected from the shallowness of the alluvium, the minor streams in this tract have cut their way into the Talchir rocks. Beautiful exposures of the glacial boulder bed occur at various points, and pot holes are as usual common. As a stream approaches the Reyr it cuts deep, narrow rifts into the Talchir sandstone, full of pellucid water. When still closer to the Reyr, as the declivity increases, gneiss takes the place of the Talchir, which is nowhere thick. Throughout the alluvial basin of Singrauli, wherever cut into by watercourses or streams, a well-defined gravel bed, from a foot to three feet in thickness is found at the base of the alluvium, resting immediately upon the Talchir rocks.

This is the implement-bearing gravel bed, or specimen drift, the subject of this paper. The village of Mahree, in the vicinity of the Bichee Nadi, forms the extreme eastern point where the implements have been obtained, while Hinoutee forms the extreme western point. In places the gravel bed is reduced to a mere string of pebbles, occasionally, even when 18 inches thick, and exposed for 25 or 80 feet, I have failed to obtain *conclusive* fragments of human manufacture, and in some few places the gravel bed was not observed at all, but this is very exceptional.

The gravel bed is, as a rule, pierced in well-sinking, and the minor forms of the gravel are usually visible round the mouth of the well, *if it is a new one*. The wells are of small diameter, three to four feet, and the gravel conglomerate, firmly cemented

[1] Here several flat oblong polished celts of diorite were obtained by me in the ravines, and two singularly sharp bevelled fragments of the cutting edges of polished celts, which were in all probability broken in use. I have constantly found such chips in Banda.

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as it is with carbonate of lime, is not easily broken up with the rude tools at the command of the villagers. Whatever the cause I have only found two rude and doubtful fragments which bore evidences of human workmanship brought up in this way. They have since become mixed with the rest of the collection.

The first axe-head picked up was, strange to say, one of the most perfect found: a rapid search was rewarded by the discovery of a pile of specimens weighing over a hundred pounds, and as I was only accompanied by a single attendant I was obliged to make a selection of these, and leave the remainder behind. The next day I pitched my tent on the spot and began my inquiries.

From the large number of implements, and from various other considerations, I concluded that the spot where they were found had been the seat of a manufactory and that the implements had not been drift-borne from over extensive areas. Thus, the whole of the gravel stratum is not equally prolific of implements; indeed they are rare elsewhere. The spalls (*i.e.*, chips) struck in the manufacture of these implements, and the huge primary flakes from which they were manufactured are found here; and I consider that the bulk of my specimens (say 95 per cent.) are unfinished implements.

The implements show signs of rolling, and weathering, and occasionally bear deposits of carbonate of lime. They are very unequally worn, some having the edges sharp, others being much worn and rounded. When broken across on purpose, they show that the material has altered in colour to the depth of a tenth of an inch and often more. The amount of wear and weathering on the celts is the same as that exhibited by fragments of similar rocks in the shingle.

No trace of fossil animal remains was found in the immediate vicinity.

The celts were found *in situ*, both in exposed sections of the gravel and in sinking pits, where the superincumbent alluvium is from two to three feet thick.

The amount of concretionary deposit on celts naturally weathered out is less than on those won by digging.

All the rocks which occur in the Talchir boulder bed are represented in the collection.

No polished implements occurred mingled with the roughly chipped; nor any implements formed of feldspathic rocks, or of jade. Stone hammers occur in the proportion of about 3 per cent. Flakes are found, but they are very coarse, and possibly doubtful.

About 12 feet of alluvium occurs at various points, but on carefully examining it no implements were found. There are

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no indications of celts or rude flakes in the Talchir boulder bed itself. In two or three cases there are chips on the broad ends of the lanceolate specimens which seem to have been caused by use, but as a rule the broad end is unfinished and often bears a piece of the crust of the original pebble. The pointed end, on the contrary, is nearly always finished.

It will now be necessary to give a description of the composition and nature of the gravel.

The gravel stratum varies from two and a-half feet in thickness to one foot in parts. This in the Hinoutee locality is composed of boulders, pebbles, subangular fragments, cubical fragments, masses of limestone, &c. The boulders vary from 18 inches in diameter to tiny pebbles an inch in diameter. The whole is loosely cemented into a mass by carbonate of lime. In places, as opposite Amaharee, the cementing matrix is exceedingly hard and difficult to dig into. Here the superincumbent alluvium is from twelve to fourteen feet thick, and the gravel stratum projects some ten feet into the river's bed in a bold promontory, having so far resisted the erosion of the river, and offering an exceptionally fine field for observation. The gravel here, as elsewhere, rests directly upon the Talchir boulder bed, the lower strata of the gravel actually touching it. The rocks which occur in the gravel are almost identical with those in the Talchir boulder bed, and I find I have noted them as parti-coloured jaspers, jasper-conglomerate boulders, pink gneiss, hornblendic gneiss, porphyritic gneiss, tourmaline granite, lumps of epidote and epidotic granite, pegmatite, vein quartz, quartzites of all colours, cherts, and even graphitic schist.

I cannot identify the quartzite with any existing upper Vendhian[1] quartzite beds with which I am acquainted in the country between Urgoorh Ghat and Burdhee. The first implement found *in situ* was a hundred yards lower down than the projecting bed. Here a magnificent section of the drift gravel is exposed for the distance of a quarter of a mile along the east bank, covered with alluvium from 10 to 14 feet thick.

The specimen, an unfinished hache, lay with a portion of the worked point projecting, firmly cemented in the hard mass. Its position was slightly below the middle of the mass, and it required to be chiseled out with a cold chisel and hammer. It is uniformly covered with a fine deposit of carbonate of lime, except on the projecting portion.

The following section will give some idea of the relations of the gravel bed, Talchir, and superincumbent alluvium. The

[1] The lower Vendhians seem everywhere to give way and disappear with far greater rapidity than the upper Vendhians. This is very noticeable in the Banda district.

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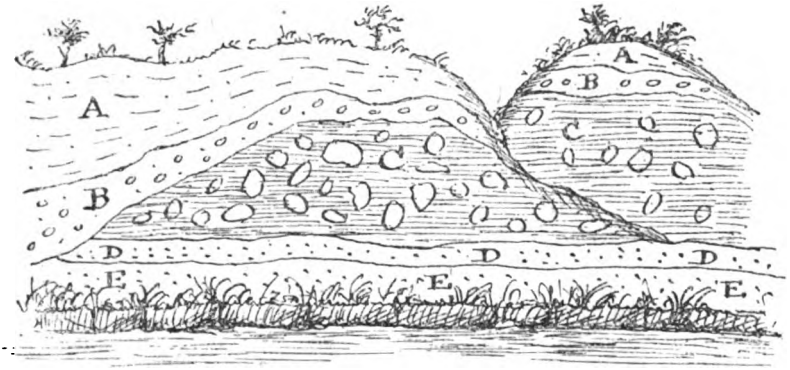
Talchir beds are of very uneven thickness, and the dip rolling. For those who are not acquainted with Indian geology the following brief sketch of this characteristic formation is appended.



SECTION ON RIGHT BANK OF THE BALLIAH NADI, OPPOSITE HINOUTEE.

A. Alluvium. B. Gravel, containing the implements. C. Talchir boulder-beds. D. Red sandstone. E. Green sandstone.

The Talchirs form the base of the Gondwana series and rest on metamorphic gneissic rocks: their thickness has been estimated at from five to 900 feet, as a rule, and in the area described, notably, "they form thin, irregular beds, filling up hollows in the metamorphic rocks which latter are often exposed through the Talchirs by denudation" (Griesbach, Mem. Geolog. Surv. Ind., Vol. xiv, p. 14, "Ramkola and Tatapani Coalfield"). The porphyritic gneiss of Pipra is the rock most commonly thus exposed.

The Talchir rocks consist of silty greenish or blackish shales, splitting into angular pieces (being jointed in three directions), or of tolerably compact green and red feldspathic sandstones, occasionally slightly gritty. The terms mudstones and needle shales admirably describe the appearance of the former. The boulder bed is usually green or black silty shale. In this indurated matrix occur pebbles and boulders of all sizes from an oval pebble one quarter of an inch in length to blocks 15 feet in diameter.

The Talchir boulder bed is now generally admitted to be of glacial origin, and is attributed to the close of the palæozoic epoch. It need hardly be said that no single fragment which bore the slightest resemblance to even the rudest implement

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has yet been found in the boulder bed, though I have searched it in vain for many miles.

The Talchir boulder bed has been supposed to be of the same age as a very similar formation at the base of the coal-bearing rocks in South Africa. These rocks are described by Mr. Gooch in his paper on the stone age of South Africa ("Journ. Anthrop. Inst.," 1881, page 167), as "fine highly laminated shale with boulders included." It would appear from his geological diagram, that the quaternary alluvium and gravels which have yielded palæolithic implements in such abundance cap this boulder formation at more than one point, but I have not clearly made this out from the letterpress, and may be mistaken. As noted by Mr. Worthington Smith in the discussion that followed the reading of Mr. Gooch's paper, the palæolithic specimens of celts very closely resemble those from Madras, and I may add, the Singrauli gravels.

This brings me to Messrs. Foote and King's discovery of implements in the laterite of the North Arcot District, Madras.

Mr. Foote's discovery was made in 1865, and the results published in the "Madras Journal of Literature and Science," for October, 1866.

Most of his specimens were found in broken-up shingle, the *débris* of a laterite conglomerate composed of quartzite pebbles; but some appear to have been found embedded in solid laterite itself; this appears, likewise, to have contained pebbles.

The laterite conglomerate either rested on metamorphic gneissic rocks, or on rocks which belong to the Upper Gondwana system, the Sri Permatur shales. These shales are of possibly similar age to the Talchir sandstones, and the thickness, composition, and deposit of the laterite gravel is very similar to the Singrauli gravel, substituting lime as the cementing matrix in the place of laterite.

No laterite is found near Hinoutee, but it caps the Pats of Sirgoojah 30 miles south, and even occurs north of the Sone River, near Sookerit, 21 miles south of Chunar, on the Ganges.

I personally compared my specimens with such of Mr. Foote's as were exhibited in the Calcutta Exhibition of 1884, and the specimens are so very similar, that it would hardly be possible to separate them were they mixed together. Every type figured by him is represented in the collection made.

He supposes that the laterite conglomerates and sands were deposited at the bottom of a shallow sea studded with mountainous islands, between which flowed strong and rapid currents, and that the implements were either dropped by accident from rafts or boats, or accumulated by the upsetting of these craft.

He divides his implements into three classes:—

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Class I. Implements with one blunt or truncated end; II. Implements with a cutting edge all round; III. Flakes.

Mr. William King, in an appendix to the above paper, was of opinion that certain of the sites were the seats of manufacture, and with this opinion I agree.

It still remains to account for the extensive spread of the gravel bed described by me over so large an area, and for the fact that many of the celts show traces of grinding and rounding of edges. It must, however, be remembered that the alluvium is very thin and that it is quite possible that if the existing brooks and streams flowed over the bare Talchir rocks and were proportionally larger, enormous quantities of shingle would rapidly form, from the weathering out of the Talchir pebbles. It is easy to understand how some of the implements would be submitted to greater rolling and grinding than others. The variation in this respect, as will seen from the specimens, is very considerable.

The arguments in favour of the site, Hinoutee, having been the seat of a manufactory are so strong as to outweigh any other consideration. The arguments in favour of the site having been a manufactory are :—

1st. The presence of the raw material which is identical with that of which the palæoliths are made.

2nd. The presence of recognizable stone hammers in the proportion of 3 per cent.

3rd. The presence of spalls, chips, and flakes.

4th. The fact that specimens in all stages of manufacture occur, and that the great majority are obviously unfinished products.

Neolithic manufactories quite as extensive have been observed by me near Kalnegar, Kalyanpur, &c., and are strewn with chert and agate splinters, used-up stone hammers and broken and unfinished implements.

My conclusion is that the implements lie where they were made, subsequent to their manufacture; and that some 20 feet of alluvium thinly scattered with pebbles from one to two inches diameter was deposited over them by aqueous causes, including possible glacial action.

DISCUSSION.

Mr. C. H. READ observed that the implements found by Mr. Cockburn in Mirzapore formed a very interesting series, although he did not think there was among them any new Indian type. They strongly resemble, as the author observed, those found by Mr. Foote, and appear to be made of the same kind of stone. The great similarity that exists between the implements of the Drift gravels, whether in India or Europe, is a very curious point, and

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one that does not seem capable of any satisfactory explanation. One of these implements in Mr. Cockburn's series might very well have been found in Suffolk, except that the material is not flint; in shape and colour it absolutely corresponds. Looking at the forms alone, and making some allowance for the difference of fracture between flint and other stones, nearly all the shapes seen here are found in the Drift of Europe. The discoidal implement with an edge all round might, perhaps, be called an exception, for, though this form does occur in England, it is of rarer occurrence.

Mr. J. ALLEN-BROWN remarked on the importance of such a collection as the author had brought before the Institute. As Mr. Read has observed, most of the implements are of well-known palæolithic forms, which have been found not only in the oldest river drift deposits of England, France, and Southern Europe, generally, but also in South Africa, in the Nile Valley, Asia Minor, and India, as well as in the Trenton gravels of North America, which are said to be of glacial origin. The quartzite implements, from the laterite deposits of Madras, closely resemble those in this collection from South Mirzapore, and like the former, it is extremely difficult to determine the age of the specimens. These implements appear to have been found mostly on the surface of the drift gravels and not *in* those deposits: under such circumstances we have no evidence of the fauna which existed at the time they were fabricated, and are, therefore, without one of the most trustworthy tests of antiquity.

Though form alone cannot afford evidence as to age which can safely be relied upon, the persistent occurrence of certain definite forms of roughly-hewn pointed implements and chopping tools (examples of which are in this collection), not only in the oldest river drift, but also in the most ancient deposits of bone caves with extinct quaternary mammalia is remarkable—such a similarity of form, however, may be explained by the assumption, that early man formed his implements naturally on the simplest models.

Some of these instruments are worn as if from use. There is no appearance of abrasion from contact with other stones in a stream, but the angles of fracture, and surfaces of some of them seem to be slightly altered, probably by rain which contains a small amount of carbonic acid, and which may have acted also as a solvent.

With regard to these objects being found near the surface, or upon the gravel deposits, Mr. Allen-Brown could well believe from the evidence which had been presented to him in the Thames Valley Drift, that old land surfaces afterwards covered by gravel and alluvium, may subsequently be exposed by denudation, and that, as a consequence, palæolithic implements may be found on the present surface of the land; though roughly chipped into shape, he regarded the specimens exhibited as finished implements, and it is probable that the spot at which they were found, was inhabited for a long period; there is not enough evidence, the speaker thought, of its having been a manufactory of such objects from the discovery, with them, of a few flakes.

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The following Notes were read by the Assistant Secretary :—

NOTES *on* STONE IMPLEMENTS *from* PERAK.

By ABRAHAM HALE, Esq.

IN "Nature" of October 29th, 1885, I first drew attention to two stone axes which I had procured at Kinta, Perak. I have since been able to increase my collection by several other specimens, all procured from Malays. Most of them having been preserved in the houses of natives of this district for several generations, have been passed down from father to son as heirlooms of no inconsiderable value. At the present time the purpose which they serve is that of whetstones on which to sharpen razors for which they are admirably suited, being for the most part made from what appears to be a very close and fine grained stone, almost like greenstone.

Nearly all the specimens are apparently axes or tomahawks of different descriptions. Of these weapons or implements almost every type associated with the neolithic era seems to be here represented except those which have been bored to admit the haft or otherwise sculptured for the same purpose: of these, however, I have heard tidings here, and hope soon to procure specimens. With one exception which was found by a Sakai about three feet deep in made earth, which he was sluicing off to procure tin sand, I can give no history of the finding of any of these specimens, beyond the imperfectly recollected statement of the Malays, on which no very great dependence can be placed—every one of them being heirlooms.

I have questioned Malays concerning Sakaies and also Sakaies themselves concerning the matter: neither the one nor the other have ever heard of such a thing as these articles ever having had any other use beyond that of whetstones or lucky things to have about the house. Probably much light would be thrown on the matter if one or two of the numerous limestone-caves of this district could be scientifically explored. This task I hope to accomplish before very long myself. For my part I think it more than probable that the Sakaies of early times, say five hundred years ago, before intercourse with Malay traders was established to any extent, were the manufacturers. These specimens are now in the Perak Museum at Thaiping.

DISCUSSION.

Mr. READ pointed out the great interest of stone implements from a new or comparatively unknown locality, and although there were no absolutely new types among the drawings exhibited by Mr.

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Hale, yet it was of importance to put on record the fact, that in the small State from which these specimens came, the type is the same as that of the neighbouring islands.

It is by no means surprising to find that there is some difficulty in inducing the native possessors of these ancient implements to part with them. Almost over the whole world these relics of the former inhabitants are regarded by the uncultivated classes as of some supernatural value, either as medicine, or from the idea that carrying them about the person will avert disaster or death. Even among the ancient Greeks, at the time when art was at its best, flint arrowpoints are found set in jewellery of the most perfect style and workmanship, and they can only have been so used in the belief that they carried with them some mysterious power. Dr. J. Anderson, in his excellent account of the expedition to Bhamo, mentions a similar belief among the Shans. Indeed, in our own country, and at the present day, instances are known of people of education entertaining the same superstitious belief in the virtues of stone implements.

March 22nd, 1887.

Francis Galton, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors—

For the Library.

From the Right Hon. the Secretary of State for the Colonies.—Despatch from the Acting Administrator of Gambia.

—— Statistics of the Colony of New Zealand for the year 1885.

From the Director of the United States Geological Survey.—Bulletin. Nos. 31–33.

From the Author.—History of the Sarsens. By Professor T. Rupert Jones, F.R.S.

—— Syllabus of Twelve Lectures on the History of the British Empire. By Rev. Alfred Caldecott, M.A.

—— Ethnographische Mittheilungen aus Venezuela. By Hr. A. Ernst.

—— Per la priorita di una sua determinazione di resti umani della caverna della Palmaria stali prima attribuiti ad un macacus. Di Ettore Regalia.

From the Royal Archæological Institute.—Archæological Journal, No. 172.

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From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, No. 67.
From the SOCIETY.—Proceedings of the Royal Society. No. 251.
—— Journal of the Society of Arts, Nos. 1790–91.
—— Proceedings of the American Philosophical Society, No. 124.
—— Proceedings of the Literary and Philosophical Society of Liverpool. Vol. xxxix, xl.
—— Bulletin de la Société de Borda, Dax. 1887. Part I.
From the EDITOR.—Nature. Nos. 906–907.
—— Science. Nos. 213–214.
—— Photographic Times. No. 285.
—— Walford's Antiquarian, No. 63.

Sir ALLEN YOUNG, Sir L. MCCLINTOCK, Mr. SETON-KARR and Dr. JOHN RAE exhibited a large number of ethnological objects principally from Arctic America.

The Secretary read the following paper:—

The MIGRATIONS *of the* ESKIMO INDICATED *by their* PROGRESS *in* COMPLETING *the* KAYAK IMPLEMENTS.

By DR. H. RINK.[1] (Communicated by DR. ROBERT BROWN).

IN a paper which I had the honour to present to the Institute last year, I tried to demonstrate how the dialects of the Eskimo tribes point to the interior of Alaska as the probable home and indicate the route by which they have spread over the coast regions from the Aleutian Islands to Labrador and Greenland.

The next question will be, how do the other peculiarities of the tribes agree with this conclusion? Notwithstanding the extreme simplicity and poverty of their mode of life, differences can be traced in their state of culture, caused partly by progress or new inventions, partly by certain habits being permitted to fall into decadence during their migrations. The problem is facilitated here by the fact that the Eskimo nation has been less exposed to that mixture and contact with other races which elsewhere renders the question more complicated. The changes have here more exclusively been dependent on natural influences, to which they were subjected in their new

[1] Besides the printed sources of information used in the preparation of the present article, I have been favoured by obtaining special communications from John Murdoch, A. Jakobsen, Aurel and Arthur Krause, relating to the West, Franz Boas regarding the Middle regions, and G. Holm concerning the extreme East of the Eskimo territory.

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homes. For this reason the farther we go back towards their supposed mother country, the more of their original habits we must expect to find still preserved.

I shall try to apply the investigation here indicated to the chief Eskimo invention, the *kayak*, or skin canoe, and to the implements which belong to it. In Greenland the latter are known to consist of (1) The water-tight clothes which when in due connection with the kayak itself, entirely covers its occupant excepting his face. (2) The double-bladed paddle. (3) For ordinary use: the large harpoon connected by a line with the bladder, intended for retarding and weakening the seal in its course through the water. (4) The lance used to give it the *coup de grace* or mortal wounds. (5) For small seals: the "bladder-arrow," or small harpoon, with a bladder fixed to its shaft. (5) The "bird-arrow," or javelin, with long subsidiary hooks of bone on the middle of the shaft to strike the bird should the hunter have missed the mark with the primary point.

Beginning with the inland Eskimo of Alaska we find that he is still carrying on his fishery in the rivers by means of the birch-bark canoe just like his Indian neighbours, but in settling at the river mouth he has exchanged the birch bark for skin, at the same time protecting his small skiff against the waves of the sea by a deck. This of course may be simply the origin of the kayak; we find it subsequently improved with regard to its form and dimensions, but otherwise it remains the same.

The implements mentioned above appear gradually, as, after having left southern Alaska, we proceed towards the north and east. The first of them, the kayak dress, has been the latest to acquire perfection. At first the dress appears to be intended as much for protection against rain as against the sea. As far as I know they do not pass beyond this stage even in Labrador, and in Greenland not before they enable the kayaker to be quite independent of the dangers of capsizing or being wholly covered by heavy sea. Then, as for propelling the kayak, in southern Alaska, perhaps with exception of the Aleutians this is performed merely by the one-bladed paddle of the Indian canoe. The first proper double-bladed kayak paddles are met with north of the Yukon River, but even there the one-bladed paddle is still used on occasions, almost as frequently as the former, and as far as we are able to judge from models, this custom is still maintained at the Anderson River. At Point Barrow the one-bladed paddle always serves for common, the other only for particular use.

Then passing to the weapons, the bow and arrow of the Inlanders are even said to have been carried on the kayak in southern Alaska. While this, however, remains doubtful, it is

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still a characteristic fact, that some at least of the javelins there are furnished with birds' feathers like the arrows for the land chase. But in the main it must have been already early observed, that a seal, even when hit by a harpoon will be able to escape more easily than a terrestrial animal, namely, by diving. To prevent this, a small inflated bladder was attached to the end of the harpoon, and in this way the "bladder-arrow" of the Greenlanders was invented. Only for sea-fowls this was found unnecessary, whereas the javelin for capturing them was fashioned as mentioned above.

The "bladder-arrow" is certainly met with on Kadjak Island. But by-and-by we see how it has been found necessary to enlarge the bladder, and of course at the same time the missile, by offering too much surface to the air, grew more and more unfit for being thrown to a suitable distance. In fact, specimens from Alaska are still seen of such a shape as would astonish a Greenlander. This inconvenience then gave rise to the invention of the large harpoon and the bladder to be separately thrown out, only connected with the harpoon by means of the long hunting line. This contrivance is unknown on Kadjak Island; passing to the north, loose bladders as a kayak implement are said to be met with for the first time just beyond the Peninsula of Aliaska, but only as a rarity, and even on Point Barrow the large loose bladder, like the double-bladed paddle, is only employed in exceptional cases, whereas the "bladder-arrow" suffices for ordinary use. I do not know where the more general use of the large harpoon and bladder begins; but in Greenland, in accordance with ancient custom, a boy is not considered a seal-catcher before he has captured his first seal in this way.

Now there is still one invention to be mentioned as indispensable in completing the large harpoon. This improvement also makes its appearance gradually from south to north, almost side by side with the loose bladder. Experience must early have shown the usefulness of fastening the point of the javelin on its shaft in such a manner, that after having hit the game it will be detached from the end of the shaft, and only remain fastened to it hanging by a strap. In Southern Alaska we see this tried in different ways, but further to the north, along Behring Strait, it is more perfectly performed. The use of the large harpoon especially required that the point should get wholly rid of the shaft, and the latter be allowed to remain floating separately; while the seal runs off with the line and the bladder. For this purpose the foremost part of the shaft is made with a joint, which enables it to be bent, whereupon the point and line will directly fall off. The movements of the seal in its struggle will occasion this. The same flexibility is given to the lance,

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whereas, on the small harpoon, or "bladder-arrow," the point has been destined to remain fixed immovably to the shaft.

Finally, we have to consider that side by side with the improvements of the implements the kayak itself is rendered more suitable for its purpose by the necessary adjustment of its form and size. A peculiar construction, and especially a certain degree of narrowness of the kayak, was still required in order to enable the kayaker to rise to the surface again by means of his paddle, in case he was capsized. This art, which in Greenland also has been considered one of the indispensable accomplishments of a seal hunter, is, as far as I have been able to discover, only exceptionally known in other Eskimo countries. Moreover, it may be added as a curiosity in the history of the development of the kayak implements, that the extreme east of Greenland can still boast of one or two small improvements unknown on the west coast of the same country.

Discussion.

Dr. John Rae on being asked to address the meeting said, that anything either spoken or written by Dr. Rink, regarding the Eskimo, must demand the greatest respect and attention of everyone. Especially is this the case as regards the natives of Greenland, of whom Dr. Rink knows, from personal knowledge, more than any other man living, having made himself as far as possible, master of the subject.

As regards the Eskimo from Hudson's Bay, westward to Behring Strait, Dr. Rink's evidence is not of equally great value, depending as it does on the report of others, and not on his own observation. Dr. Rae entirely agrees with Dr. Rink's remarks on certain advantages of the Greenlanders' *kayak*, and the expertness of the kayaker himself, over those of the natives further west, where the *kayak* is much broader in the after part, therefore less liable to capsize, and could not be "righted" by the kayaker as the man of Greenland does when capsized. He had seen kayaks capsize both at the McKenzie River and in Hudson's Bay, and but for the presence of others the men would have been drowned. Along all the Arctic coast from McKenzie River to Hudson's Bay the double paddle is used, so also is the waterproof sealskin coat, tied round the wrists, the face, and round the rim at opening where the man sits.

The various parts of the kayak as mentioned by Dr. Rink, with the exception of one weapon, were well illustrated by a model of a Greenland one shown by Dr. Rae.

Dr. Rink said he had tried to demonstrate that the interior of Alaska was the probable home of the Eskimo tribe, and his *original* boat the birch bark canoe, which he still uses on the rivers of Alaska, "just like his Indian neighbours." Dr. Rae, with much diffidence ventured to differ entirely from this view, and his

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opinions are on record in the journals of the Ethnological Society and Anthropological Institute; his belief being that the old home of the Eskimo tribe was the north-eastern portion of Asia, and that in their emigration to America they came from the west and crossed the sea, probably at Behring Strait.

Dr. Rae further thought that the original boat of the Eskimo was made of skin, and that when they went inland by the great rivers of Alaska and made a new home there, they, being an adaptive and clever people, naturally took to building and using bark canoes, as being more readily and easily made, and cheaper, as sealskins could not be obtained, except with difficulty. Dr. Rae considered that, under the circumstances, a change from skin kayak to bark canoe was no sign of degenerating, but rather shewed intelligence and ingenuity.

Mr. H. W. Seton-Karr observed that the model which Dr. Rae exhibited was the true *kayak* having only one hatch. The two models which the speaker exhibited were of three hatch *bidarkies*, as this kind of canoe is named in Central Southern Alaska. The sealskin canoe is not known further south than the Copper River. From this point west to the Aleutian Islands these *bidarkies* are one, two, and three hatch, rarely one hatch. Two and three hatch *bidarkies* were formerly confined exclusively to the Aleutian Islands. North of Bristol Bay only one hatch *bidarkies* are used. This is the *kayak* proper. Mr. Seton-Karr exhibited an Eskimo gut coat which he always wore himself, but he explained that he could not put it on as it was necessary always to wet these coats or *kamleygas* in order to soften them first. He understood that this word was from a Siberian word, *kamlaïa* meaning "deer-skin coat." Wearing these coats in a *bidarky* or *kayak*, and having them firmly lashed to the rim of the hole, one can pass through rough water and even breaking surf in safety. Bows and arrows are certainly carried upon the canoe in Prince William Sound and Cook's Inlet. He exhibited some of the bows and arrows used for sea-otter hunting. The barb is fixed lightly in the end of the arrow and remains fixed in the sea otter while the shaft becomes detached. and the gut string unwinds. The shaft then floats at right angles to the cord, and, acting as a drag, soon exhausts the animal. The arrow is winged with eagle's feathers, and the fore part of the shaft is white bone from a whale's jaw.

Mr. Petroff (who was a census agent for enumerating some of the Indian tribes in South Alaska in 1878–1880, and who was sitting near Mr. Seton-Karr at supper when the Alaska Company's agent was shot at with slugs from outside the house and killed by his side by a Russian Indian) considers that the Eskimo reached the coast from the interior.

Sir Erasmus Ommanney, remarked that in his arctic voyages he had visited the settlements in Greenland, Okkuk in Labrador; on his search after Franklin's expedition he communicated with the small tribe located on the coast at the extreme north of Baffin's

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Bay and the entrance of Smith's Sound, lat. 78° N., from whom he brought to England he believed the only Eskimo ever brought to this country, the tribe in question being isolated entirely from the habitable world, even from the Eskimo in southern Greenland, from whom they were separated by hundreds of miles of glacier. This singular tribe were first discovered by Captain John Ross in 1818; until then they believed themselves to be the sole possessors of the earth; on beholding Ross's ship they were amazed and terrified with fright, wondering with awe what the apparition of the ship would entail upon them.

It was at Cape York that the speaker fell in with these people, and induced one of them to join the ship, with a view to make him useful in his search for Franklin; the youth was about eighteen years old; he came aboard with three companions. On being taken into the engine room the furnaces astonished them, but when the engine was started they bolted on deck with fright. Being anxious to proceed, as he had a wish to bid farewell to his friends, he went on to the Wolstenholme Sound where he ascertained that H.M.S. "North Star" had wintered there. The Eskimo was named Erasmus York; he conducted the speaker to the winter quarters of his tribe, which consisted of several huts built with stones into a dome shape. Several dead natives were found in their huts lying in their clothing of sealskin, and there was a place of sepulture for the dead. A spear was removed from a grave by one of the officers, which called forth tears and entreaties from the natives, as they hold a superstition that the spear is required after death for hunting in another world.

As regards the origin of these people, this native gave evidence of Asiatic descent: in form and features he was of Mongolian type, the eyes being placed in an angular line as in the Chinese, wide apart, high cheek bones, flattish nose, sallow complexion, straight black hair, wide across the forehead, about five feet four inches in height. From the traces of their settlements along the south shores of the Parry Islands, it must be concluded that these people had in former times gradually migrated from Behring's Straits.

It is remarkable that the habits, dress, and implements correspond with those of the Eskimo on the continent, Labrador, and South Greenland.

He passed the winter with the party after Sir Erasmus Ommanney had discovered the first traces ever found of Franklin's ships; the party was frozen up for eleven months, and during that time he became accustomed to our habits and learnt to read and write. On the speaker's return to England he was sent to the Missionary College of St. Augustine's College, Canterbury, for three years; the mind did not expand beyond the rudiments of the three R's. He was docile, amiable, taciturn, had naturally good manners, and was devoid of excitement. He showed a taste for drawing; and delineated a good map of the country and coast of his native land. The animals on which these people subsisted were seals, walrus,

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deer, and birds. They did not possess the kayak, or canoe, in use by the other Eskimo.

Sir LEOPOLD MCCLINTOCK desired to express his admiration of the genius and the enthusiastic perseverance of the author of the paper, Dr. Rink, through whose labours our knowledge of the habits and traditions of the Greenland Eskimo has been so greatly increased.

He exhibited to the meeting some interesting woodcuts, being the work of these people in Greenland, illustrating their mode of life, their traditions, including their conflicts with the Scandinavians and their weapons. Dr. Rink, who had fostered these efforts at producing woodcuts, very justly appealed to them as evidence of the capacity of the Greenlanders for improvement and elevation.

Sir Leopold also exhibited a toy sledge, from the Eskimo living under the 78th parallel—and therefore nearer to the North Pole than any other people. It was composed, like their large sledges, of pieces of drift wood, bones, and walrus ivory, ingeniously bound together with strings of seal skin. He remarked that here in the north-west corner of Greenland, the further migration of the Eskimo was checked by impassible limits of ice and snow, and in this desperately severe climate, their privations were so great that their lives were spent in a constant struggle for subsistence; they were unable to supply themselves with kayaks, or bows and arrows. They were but few in number and they were decreasing yearly. In reply to the President he said he saw no greater difference between this remote tribe and other Eskimo further south along the shores of Baffin's Bay than was due to the greater severity of their climate and the greater privations they were subjected to.

Miss BUCKLAND requested some of the Arctic explorers to inform her whether bows made of bone were used by the Eskimo, as there were two in the Bath Museum among relics brought over by Ross or Parry, which she understood had been taken from Eskimo graves, and as one was broken, she wished to know whether it is the custom of these people to break weapons and other implements buried with the dead as is done by some races either with the idea of sending the spirit of the implement to join the spirit of the man, or with the more utilitarian idea of preventing its being abstracted and used by the living.

Professor FLOWER read extracts from two letters addressed to him by Mr. COUTTS TROTTER, dated from s.s. "Lübeck," between Samoa and Sydney, December 19th and 22nd, 1886.

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NOTES *on the* NATIVES *of the* POLYNESIAN ISLANDS.

By COUTTS TROTTER, Esq.

RECOLLECTING the interest you have taken in the natives of these islands, and the study you have given to them, I cannot resist giving you one or two general impressions that struck me, not that they can be of the smallest value. I need hardly say how often I wished for your presence while puzzling over the different types of face that one sees. One curious thing is the way they all resolve themselves into a few groups, within each of which all the individuals are so closely alike, that it is all but impossible to distinguish them, so that you are constantly reduced to the alternative either of cutting your acquaintance or of saluting a stranger, and in these sociable regions the latter plan is much the less likely to give offence. This appearance of running into groups may be merely the way one's eye behaves among new surroundings, but I think the small numbers and isolation of the people, their tribal systems, and some of their customs, *e.g.*, the practice, for political or social reasons, of keeping up certain large circles of connection or cousinship, may have something to do with it. Then, besides the varieties in each island, you have the effects of intercourse between the groups. In the east of Fiji the Tongans have more than half swamped the Fijians, and one traces Fijian blood in Tonga, and also even in Samoa. In fact one of the characteristic Samoan types—a broad, rounded, good humoured face, with eyes slightly smaller than average, and in the women always ready to dimple into smiles—always seemed to me to have something Fijian in it, though after all, this is perhaps only an element common to the three groups, for this pleasant rounded female face, which at last you begin to think quite pretty, has a sort of counterpart, *with a difference*, in Tonga, where perhaps it is rather prettier. Another different, and equally characteristic, type of Samoan man has peculiarly clean straight cut eyes and brows, giving a rather cold, hard, *distingué* expression. By the way, are all these people mesorrhine? My eyes may have deceived me, or become used to the type, but I should say many of the faces one sees have the lower part of the nose no wider than a European.

Of course you meet plenty of men and women without either fine figures or handsome faces, but a large proportion have fine figures and carry themselves well, and there is a smaller but relatively considerable number of men perfectly magnificent in size and proportion from head to foot, never falling away below the knee like some of the otherwise fine Indian races, and many

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of the young women have perfect busts and figures that seem to tread on air.

The women carry themselves even better than the men, who often slouch a little, and it is remarkable that the old women do not become hags, but the figure remains perfectly slim and upright, and very elegant. The way they are trained to walk has something to do with this, the shoulders square, and the head thrown back, the arms at every step (this especially in Tonga) swung well behind them. But in Tonga the beauty of the human figure is seen no more, for the ex-reverend Premier, whether for moral or financial reasons I leave you to judge, has decreed and strictly enforces a heavy fine on every man who is seen, even inside his fence, without a shirt, and on any woman not muffled in a pinafore. The rule does not anyhow tend to cleanliness, and it also makes it less easy than formerly to compare the colour of Samoans and Tongans. To my eye there is distinctly a shade more of yellow in the former, a slight excess of copper, in short, in the Samoan bronze. The upper class is by no means fairer than the lower (probably the two are much mixed), anyhow I saw conspicuous examples of the contrary. The Tongan royal family, for instance, the Tubo, is exceptionally dark, as is the family of Thakombau in Fiji (I forget in which of the Polynesian groups they have a saying to the effect that the chief is dark and the common man fair).

Of Fiji I saw very little beyond parts of Viti Levu, but there too, mingling with the usual broad-faced, dark brown type, I constantly detected another, with an elliptical-shaped face, high and narrow forehead, projecting brows, skin rather black than brown, altogether a more negroid look, but this type again, or modifications of it, is not confined to the Kai-si (common people). By the way—language apart—wherever we may be pleased to class the typical Fijian, he is to the ordinary observer distinctly much nearer to the Samoan and Tongan than he is to the Solomon or New Hebrides man, and he is a far finer looking fellow than these Melanesians. I have not seen many New Hebrides people, but I have seen numbers of the Solomons, and was much struck by their diminutive size; very small heads, but clean, lithe, active little fellows. But as regards the Fijian you cannot help feeling that however "interesting," he has not the mental capacity of either Tongan or Samoan, though (as has been noticed before), his artistic powers seem greater or more developed. But what struck me as especially curious was the occurrence both in Samoa and Tonga, but especially in the latter, of very marked "Mongolian" or Japanese features. I recall particularly a granddaughter of the King of Tonga, with a small slight figure,

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dark, but sallow, small features, distinctly oblique eyes, and long, black hair, drawn up off the forehead into a top knot, who might have walked off a Japanese fan or plate. I suppose these are only the result of accidental importation? In the Tokelaus (Ellice group) many of whom one meets as imported labour, the Mongoloid look is also very strong. Several of their women I saw, if appropriately dressed, would be undistinguishable from North American squaws.

I regret — among many regrets — that I could not go to Rotumah. The Rotumah boys, whom one constantly meets as sailors, are the handsomest Pacific islanders I have seen; but in an island of this size, which has been frequented by whalers for generations past, there must be a large infusion of European blood, a circumstance which, I take it, modifies the type in many of the groups to a greater extent than is commonly allowed for. I am ashamed at having gone on gossipping to this length, and will say nothing about the charming manners and refined nature of the people—for everyone has noticed this. Such a contrast in real innate politeness to the Arabs for instance, who are supposed to be a polite people, and their houses so infinitely cleaner and pleasanter. Perhaps after all, their cricket and their music are the most wonderful things about them, showing their extraordinary powers of adaptation—you see these men, naked from the waist upwards, and bare legged, standing up to swift bowling, fielding splendidly, wicket keeping, going "over," just like so many born Britishers; and the way they have taken up European music, when well taught, as by Mr. Moulton in Tonga, is equally remarkable, especially when one remembers how essentially different it is from their own. I enjoyed their own proper music, and it grows strongly on you. There is a great deal of melody, the most perfect and intricate time, and distinct harmony, but there is something essentially different from our music, and often I heard songs which I do not think could be rendered by our system of notation.

Once more excuse the length to which I have run on. I wish I could have sent you anything of real value, but to have done this would require, besides the previous training and technical knowledge which I do not possess, a far longer residence in the islands, and a knowledge of the language.

I have heard two or three times of stone implements being dug up at considerable depths in the Fiji Islands, and in one case the implements were quarried out of a reef, which argues long habitation. I enclose a sketch of a celt, dug up some two feet deep in the Rewa River, and another of a curious sort of gouge. I believe these last have been found elsewhere, but I have not heard of them in Fiji. The material of the gouge

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appeared to be a fine grained basalt. Dr. Macgregor, to whom they belong, showed me a large and very thick, heavy celt, also of basalt, and much worn, which was found at nine or ten feet depth in alluvium.

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ANTHROPOLOGICAL MISCELLANEA.

Lectures on Anthropology.

A course of three lectures on "Heredity and Nurture" will, with the permission of the Lords of the Committee of Council on Education, be given at the South Kensington Museum, on behalf of the Anthropological Institute, by Mr. Francis Galton, F.R.S., President of the Institute.

The Lectures will take place on Saturday afternoons, November 12, 19, and 26, at 4.30 p.m.:—Lecture 1. November 12th. Observed diversity in the bodily and mental characteristics of individuals. Anthropometric tests, and records of life-histories. Lecture 2. November 19th. Limits to the inheritance of ancestral peculiarities, and to the hereditary transmission of disease. Individual variation. Lecture 3. November 26th. Influences of various kinds of nurture, training, and occupation on the average vigour, longevity, and disposition, of large classes of persons. Recapitulation and suggestions.

Demonstrations of anthropometric methods will be given at the close of each lecture, so far as time permits.

Students in Training, National Scholars, and registered Students of the Department of Science and Art will be admitted free. The Public will be admitted on payment of a registration fee of 1*s.* for the course.

British Association Meeting.

The fifty-seventh Meeting of the British Association for the Advancement of Science will be held at Manchester under the Presidency of Sir Henry Roscoe, M P., LL.D., D.C.L., F.R.S., commencing on Wednesday, August 31st. Section H, devoted to Anthropology, will be presided over by the Rev. Professor A. H. Sayce, M.A. Papers to be read at this meeting should be sent as early as possible, with Abstracts, to the offices of the Association 22, Albemarle-street, or to Mr. G. W. Bloxam, Recorder of Section H, at the rooms of the Anthropological Institute, 3, Hanover-square, W. It is proposed to form a museum of objects of anthropological interest to be open during the week of meeting. Persons desirous of contributing to this museum should give due notice to the Recorder.

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Archæological Meeting.

The Annual Meeting of the Royal Archæological Institute of Great Britain will be held at Salisbury, under the Presidency of Lieutenant-General Pitt-Rivers, D.C.L., F.R.S., F.S.A., commencing on Tuesday, August 2nd, when the President will deliver the inaugural address.

The Romano-British villages, described by General Pitt-Rivers at the last meeting of the Anthropological Institute will be visited on August 9th.

At the conclusion of the Salisbury meeting a party will proceed to Brittany for the purpose of studying the prehistoric monuments and other objects of archæological interest. It is proposed to visit Cherbourg, Contances, Mt. St. Michel, Rennes, Vannes, Carnac, Quimper, &c.

Chinese Superstition.

"On rapporte d'après des témoignages sérieux que les pirates chinois qui ont assassiné récemment M. Haïtce, membre de la mission de délimitation du Tonkin, à Monkay, ont mangé son cœur et son foie et bu son fiel délayé dans de l'eau-de-vie de riz. Ils croyaient faire passer ainsi le courage du jeune Français dans leur corps. Ce fait indique une superstition que l'on retrouve dans presque toutes les religions."—From the "Matériaux pour l'histoire naturelle et primitive de l'homme," July, 1887, p. 300.

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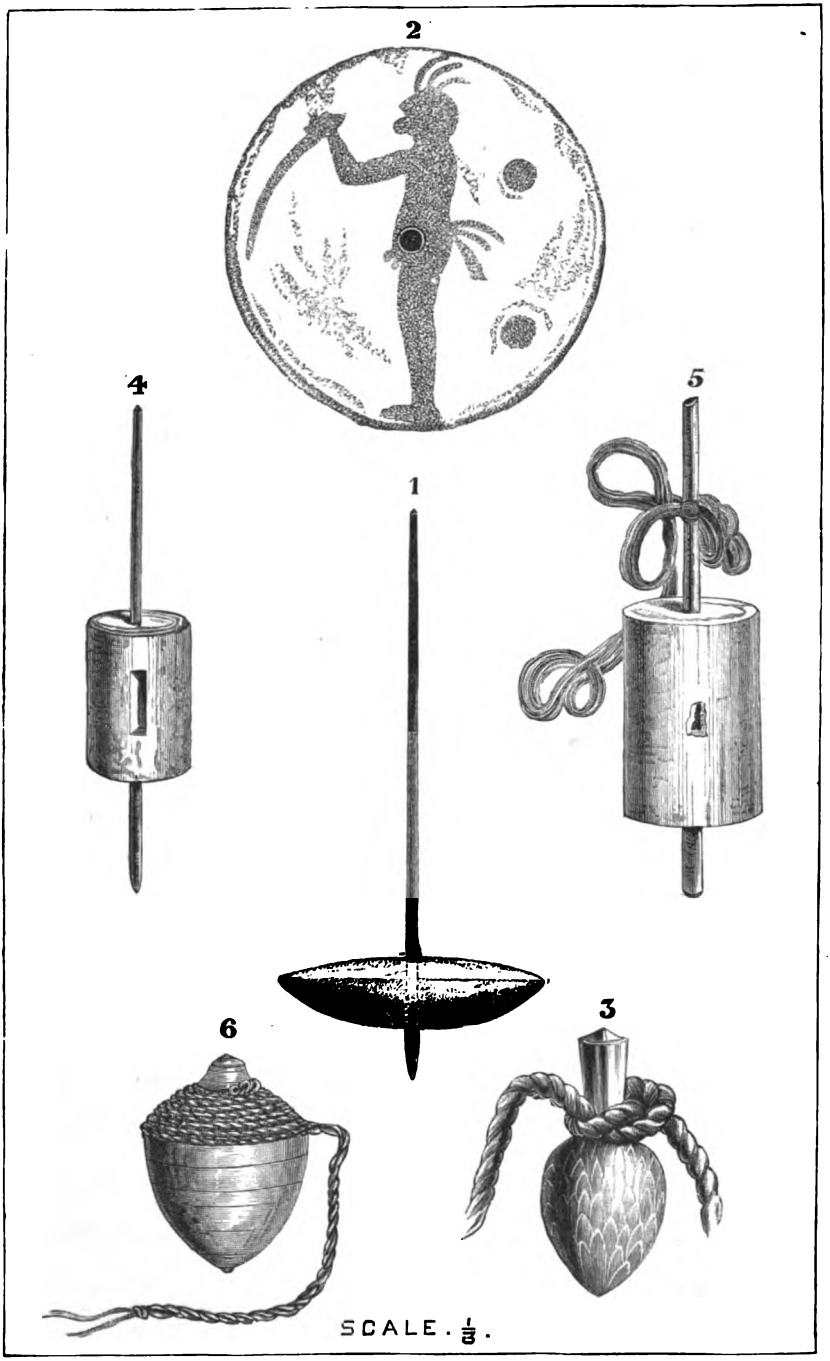

SPINNING TOPS. See page 89.

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THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

APRIL 26TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of G. B. HOWES, Esq., F.L.S., F.Z.S., Assistant Professor of Biology at the Normal School of Science, South Kensington, was announced.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From the Rev. G. BROWN.—A Comparison of the Dialects of East and West Polynesian, Malay, Malagasy, and Australian. By the Rev. George Pratt.

From the UNITED STATES GEOLOGICAL SURVEY.—Geological History of Lake Lahontan. By Israel Cook Russell.

From the YORKSHIRE PHILOSOPHICAL SOCIETY.—Annual Report for 1886.

From the SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. iii, Nos. 1–4.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Correspondenz-Blatt. 1887. Nos. 2, 3.

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From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1886. Heft 2.
From the AUTHOR.—A Few Additional Notes Concerning Indian Games. By Andrew McFarland Davis.
—— L'Anthropologie et la Science Politique. By M. G. de Laponge.
—— La Race Humaine de Neanderthal ou de Canstadt en Belgique. By Julien Fraipont and Maximin Lohest.
—— Studi sul Darwinismo. By Francesco de Sarlo.
—— I Sogni. Saegio psicologico. By F. de Sarlo.
—— Das Grabfeld von Elisried und die Beziehungen der Ethnologie zu den Resultaten der Anthropologie. By J. Kollmann.
—— Un Caballito Peruviano. By Dr. Paolo Riccardi.
—— Circonferenza Toracica e Statura studiate a seconda de l'età e del sesso in una serie di Bolognesi. By Dr. Paolo Riccardi.
—— Intorno a la Oscillazioni giornaliere de la Statura ne l'uomo sano. By Dr. Paolo Riccardi.
—— Studio sopra una serie di crani di Fuegini. By P. Mantegazza and E. Regalia.
—— Antropologia dell'Italia nell'evo antico e nel moderno. By Giustiniano Nicolucci.
From the BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—Notulen. Deel xxiv. Afl. 4.
—— Catalogus der Archeologische Verzameling.
From the KONINKLIJKE AKADEMIE VAN WETENSCHAPPEN, AMSTERDAM.—Jaarbock. 1885.
—— Verslagen en Mededeelingen. Afdeeling Natuurkunde. Derde Reeks.—Deel ii.
From the AKADEMIJA UMIEJĘTNOŚCI W KRAKOWIE.—Zbiór wiadomości do Antropologii Krajowéj. Tom. x.
—— Rozprawy i Sprawozdania z Posiedzeń. Tom. xiii, xiv.
—— Pamiętnik. Tom. xii.
From the MAGYAR TUDOMÁNYOS AKADÉMIA.—Almanach 1886.
—— Nyelvtudományi értekezések, xii, 6–12; xiii, 1, 2, 5.
—— Nyelvtudományi Közlemények, xix, 2, 3.
—— Nyelvemléktár, xiii.
—— Történettudományi Értekezések, xii, 3, 5–10; xiii, 1, 3.
—— Társadalmi Értekezések, vii, 10; viii, 1, 6.
—— Dankó József. A franczia könyvdísz.
—— Fejérpataky László. A királyi cancellária az Árpádok korában.
—— Dr. Wlassies Gyula. A bünkiserlet és bevégzett büneselekmény.
—— Ungarische Revue. 1885, 8–10; 1886, 1–10.
—— Bulletin. iv, v.
—— Naturwissenschaftliche Berichte. iii.
From the IMPERIAL UNIVERSITY, JAPAN.—Journal of the College of Science. Vol. i, parts 1, 2.
—— Memoirs of the Literature College. No. 1.
From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. x. No. 1.

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From the ASSOCIATION.—Journal of the East India Association. Vol. xix. No. 4.
—— Journal of the Royal Historical and Archæological Association of Ireland. Fourth series. Nos. 68, 69.
From the INSTITUTE.—Proceedings of the Canadian Institute. No. 147.
From the SOCIETY.—Journal of the Society of Arts. Nos. 1792–1796.
—— Proceedings of the Royal Society. No. 252.
—— Proceedings of the Royal Geographical Society. 1887. No. 4.
—— Proceedings of the Society of Antiquaries of Scotland. 1885–86.
—— Bulletins de la Société d'Anthropologie de Paris. 1886. Fas. 4.
—— Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg. T. xxxi, No. 4.
—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1886, No. 4; 1887, Nos. 1, 2.
—— Bulletin de la Société Neuchateloise de Géographie. Tom. ii. Fas. 3.
—— Boletim da Sociedade de Geographia de Lisboa. Nos. 7, 8.
From the LIBRARIAN.—Report of the Mitchell Library, Glasgow, 1886.
From the EDITOR.—Nature. Nos. 908–912.
—— Journal of Mental Science. Vol. xxxiii. No. 141.
—— American Antiquarian. Vol. ix. No. 2.
—— Science. Nos. 215–218.
—— Photographic Times. Nos. 286–291.
—— Kosmos. Vol. i. No. 2.
—— Revue d'Ethnographie. Tom. v. No. 6.
—— L'Homme. 1886, No. 24; 1887, Nos. 1–4.
—— Bullettino di Paletnologia Italiana. Tom. iii. Nos. 1, 2.

EXHIBITION *of* NATIVES *of* QUEENSLAND.

By Mr. R. A. CUNNINGHAM.

Mr. CUNNINGHAM exhibited three natives of Northern Queensland, namely a man named "Billy," a woman "Jenny," and a boy known as "Little Toby." About five years ago he brought them, with much difficulty, from Australia, accompanied by several other natives, since dead. They had been scientifically examined by the Anthropological Societies of Berlin, Paris, Brussels, and Russia; and had travelled for public exhibition through the chief cities of Australia, the United States, Canada,

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and parts of Europe, including Moscow and Constantinople. Mr. Cunningham in giving a brief description of their manners and customs, called attention to the cicatrices on their bodies, which were regarded as ornamental, and resulted from wounds made by means of sharp stones or fragments of glass from broken bottles. In illustration of the method of throwing the boomerang, the natives experimented with paper models and displayed great skill in throwing these mimic weapons so as to ensure a return flight across the room. They gave illustrations of a corroborie, sang several native songs, and attempted to count a number of objects laid before them. Excellent portraits of the two adults are in the collection of photographs presented to the Institute by Prince Roland Bonaparte.

Discussion.

The Rev. W. Wyatt Gill said that he had more than once visited the places (Cardwell and Palm Island in Northern Queensland) from which these aboriginal Australians came. He described them as being fairly typical specimens of the race, except that they were of a much lighter colour—owing to enforced frequent ablutions—than can be met with in their own country. Despite the arguments of learned men, the speaker held to the conviction, based on personal observation, that the aborigines of Australia, and of south-western New Guinea are substantially one race. It is an ascertained fact that the coast tribes of New Guinea are immigrant; and are now much intermixed through marriage with the true aborigines of that interesting island. The similarity of their customs is most striking to one who (like himself) had seen a great deal of both Australian and South-western New Guinea natives. They, too, were nomads,—not the coast tribes, but the inland aboriginal natives of south-western New Guinea. This view is fully endorsed by the speaker's friend, the Rev. James Chalmers.

Mr. Wyatt Gill proceeded to say that in a few months he hoped again to be in Sydney, and that there were several scientific men there who took a deep interest in the proceedings of the Anthropological Institute. They hoped ere very long that a somewhat similar society of their own would be formed. Their nearness to the islands of the Pacific and New Guinea, besides the presence of an aboriginal race, are highly favourable circumstances. As many of these aboriginal races are fast dying out, no time is to be lost in gathering up all that can possibly be known of their characteristics, habits, thoughts, worship, and language.

The following paper was then read by the author:—

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STONE SPINNING TOPS *from* TORRES STRAITS, NEW GUINEA.

By C. H. READ, F.S.A.

[WITH PLATE IV.]

THE subject of my paper this evening may perhaps be thought a somewhat trivial one to bring before a learned society, but I hope that it may be found not without some bearing on more obviously important matters. I have, however, merely put together a few notes upon these spinning tops, leaving it to others to draw what inference they might from the facts brought forward.

Among a number of objects from New Guinea recently added to the ethnographical collections at the British Museum are the two stone tops of which I exhibit this evening full-sized drawings. They are the first of their kind that I have seen from this part of the world, and it, therefore, seemed to me to be worth while to bring them before the notice of the Institute.

The tops are made of a buff grey sandstone, ground into a lenticular form, $5\frac{7}{8}$ and $4\frac{1}{8}$ inches in diameter respectively, the upper faces being, however, much less convex than the lower, and the outlines of both are fairly circular. In the central hole of each is fixed a stick of palm wood, the larger, $11\frac{1}{2}$ inches, and the smaller $8\frac{5}{8}$ inches, in length, about half-an-inch of which projects on the under side, and the lower part of each stick is painted of a dull red colour. The most remarkable part of these objects is, however, the design which each of them bears on the upper face. Upon the larger of the two is painted in red ochre a standing figure, in profile to the left, of a native with his two arms held up in front of him, and holding some object from which proceeds a curved line, in appearance like a jet of water. The figure is remarkably well drawn, and evidently represents a native in his holiday dress. His head is decorated with three plumes, probably of feathers of the cassowary or of the bird of paradise, and he has two others at the back of his waistband, and behind him are two circular patches of red. Round the edge of the top is a line of red.

The smaller top is painted, or rather stained, with a figure in black, with faint touches of red and yellow. The design is a standing figure, full face, of a character less readily understood than the other. The figure wears apparently trousers, reaching below the knee, has the left hand resting upon the hip, and the right raised and holding an object, which may be a club, though it is not unlike a bottle. The head has apparently been painted in red, and is now but faintly indicated,

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having been very much rubbed before it reached my hands. A suspicion has been borne in upon my mind that this painting may be intended to represent a white man with the bottle, which is but too often his companion when living among savages. In the carvings of the West African negroes, the typical white man is constantly figured with a brandy bottle in one hand and a large glass in the other, while in the Nicobar Islands the figure of the British sailor occurs very frequently in the clever sculptures executed by the natives. Among all savages, indeed, who have any pictorial skill, and few have not, the clothed white man is a subject which the artist cannot resist. It may, therefore, well be that the figure on this top is intended to be an European in the attitude which seemed to the painter most characteristic.

These specimens were obtained by the Rev. S. McFarlane, on Murray Island, in Torres Straits, lat. 9° 55′ S., long. 144° 2′ E. Mr. McFarlane has been for many years a missionary in New Guinea, and has visited and lived among most of the tribes of the islands of Torres Straits, of the mainland near the Baxter and Fly Rivers, as well as those of the South-eastern peninsula towards China Straits. He is, therefore, eminently qualified to speak of the habits of the savages of this part of the world. He tells me that these tops are undoubtedly made and used by the natives of Murray Island, although tops are not common toys among the Papuans.

As far as I can gather from Mr. McFarlane, these tops are used simply as toys, much as in our own country, and I did not understand that they were either the means of gambling, nor were they employed in any other special manner. With regard to their use I can, therefore, find little to say.

The making of them, however, must have been a tedious operation, upon which a considerable amount of time was expended. The process is no doubt the same as that employed in making the circular stone discs used by the Motu, and some other tribes, for the heads of their clubs. This, according to Mr. Stone ("A Few Months in New Guinea," p. 57), is to hammer the stone incessantly with another and harder stone, until it is brought to the required shape; after which it is ground smooth, with a sharp edge all round, the operation taking several weeks. If the Murray Islanders possess a drill, like the Koitapu of Fairfax Harbour, the piercing of the central hole would be a work of no difficulty—but even without a drill it would be merely a matter of time if a pointed stone or sharp shell were used, and the exact centre had been previously found. The only really difficult part of the work, and the part in which something more than mere patience was needed, is the grinding

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of the convex underside. It is obvious that if the disc were thicker, and therefore heavier, at one side than another, the top when spun, would describe but very few revolutions, and would speedily come to a standstill. The curves of these two specimens are, however, very true, one of them being slightly better than the other, so that when it is energetically spun, it revolves quite evenly in one spot, a process known to school boys as "going to sleep."

I have called these objects tops, though, as they seem to be spun with the hands only, teetotum would be a more accurate term.

With regard to the subjects painted upon them, Mr. McFarlane could not speak with certainty, but suggested that the figure on the larger top represented a native in his dancing dress.

The dances of the Torres Straits islanders are practised at night, and have for their object success in hunting and fishing. It is on these occasions that the extraordinary masks of tortoiseshell are used, and I assume that the form of the masks to be worn would have relation to the particular sport to be engaged in, for example, in the dance to ensure success in fishing, the mask would represent a fish, and so on. Instances of similar dances among savages of other parts of the world will readily suggest themselves to many members present. The series of tortoiseshell masks at the British Museum now contains a good number of specimens, the greater part of which have been sent home by Mr. McFarlane. They represent human heads, fishes, a pig's head, and the largest is an alligator, between six and seven feet long. This we obtained from Mr. McFarlane, and he tells me that the youth who made it actually copied it from the real animal placed before him, and thinking a more artistic effect would be obtained by the alligator's mouth being open, he placed a stick between its jaws to prop them apart, and so they remain in the tortoiseshell copy. I think this indicates an amount of artistic feeling unusual among savages, who are wont to be content with the conventional styles of representation handed down from their forefathers, and but seldom refer to the original type for inspiration.

To return, however, to the subject of my paper. The larger top, I think, we may consider shows a Papuan in gala dress, and probably engaged in a propitiatory dance. In the case of the smaller one, Mr. McFarlane could offer no suggestion as to the subject, and was, on the whole, inclined to think with me, that it represented an European, with his trousers rolled up and holding a bottle in his hand, in fact, just as he would often be seen by the natives. If this be so, it would be an indication

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that the decoration of the top, and perhaps the top itself, is of no great age, perhaps ten to thirty years.

I do not think it very probable, though it is, of course, possible, that the natives of the Torres Straits islands invented spinning tops for themselves. It is far more likely that they received the idea from a more cultured and ingenious race; for, apart from the rarity of the occurrence of this toy among savage tribes, it is evident that the notion of a spinning top, a very complex toy, would be little likely to spring ready made into the mind of a people of the mental calibre of the Papuan. We must, therefore, look elsewhere than among the races of New Guinea for the origin of the toy, and it is, of course, towards the neighbouring Asiatic Archipelago, to the west and north, that our first glance would be directed. On the south is Australia, the nearest point of which (80 miles distant) is inhabited by tribes far inferior in physique, and of more limited resources than the Torres Straits islanders themselves; to the east is the Pacific, where live races but little more cultivated than the Papuan, and very little, if at all, more inventive.

Among the Asiatic islands, however, I have not been so successful as I anticipated in finding spinning tops greatly used. In one of the drawings, I show a full-sized figure of a spinning top from Timorlaut, one of the Tenimber Islands, whence it was brought by Mr. H. O. Forbes, now in New Guinea. This specimen is neither of the same form nor material as those from New Guinea, but the mere fact of a top on the same principle being used by a tribe so comparatively near is, I think, worthy of note. As showing the close connection between distant parts of the archipelago, I would mention the great likeness between the drums used in these Tenimber Islands, Dutch New Guinea, and the Philippines (Luzon). The habit of chewing the betel nut, also practised by many of the tribes of the Papuan Gulf, even down to the extreme south-east, came of course from the Asiatic islands, and no doubt tobacco smoking was introduced from the same source. These facts form at all events, *prima facie* evidence of the Asiatic origin of top spinning among the Papuans.

In illustration of the Torres Straits tops, I exhibit full sized drawings of four other tops. One from the Straits Settlements, is a humming top, made of a section of bamboo, with an oblong opening in the side; the second is of precisely the same form, and is stated to come from the Stewart Group (Sakayana), lying a little to the east of the Solomon Islands. I must confess, however, to having some doubts about the correctness of this locality, though the specimen came from the Godeffroy Collection, where they have the best means of testing its accuracy.

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The third is a Malay top (*gasing*) made on the lathe, and furnished with an iron peg at the base. It differs from the European top in having the string wound round the upper part. The fourth is the top from Timorlaut before mentioned. This is cut by hand, and is oviform in shape. The long peg on the upper part is used to wind the thick twisted cord, which is made of a piece of Manchester print.

I might, with perhaps some advantage, have brought forward objects similar to these from parts of the East more distant from New Guinea, from India, China, and Japan. And, as a matter of fact, the modern Japanese top resembles these in question more nearly than any other that I am acquainted with. But at this time my object is simply to bring these curious toys under the notice of the Institute, and it was, therefore, unnecessary to go very far afield for analogous instances.

NOTE.—All the specimens, of which drawings were exhibited at the meeting, are in the British Museum.

Description of Plate IV.

Fig. 1. Teetotum or top. It consists of a lenticular disc of greyish buff stone; the upper face is flatter than the lower, and ornamented (*see* p. 85.) Length of stick, 8·6 in.; diameter of disc, 4·25 in.; thickness, 1·3 in. Brought from Murray Island, Torres Straits, by the Rev. S. McFarlane.—*British Museum* (*Christy Collection*).

Fig. 2. Teetotum or top, of similar construction and material. The design on the upper face is in this case entirely in red ochre, and represents a standing figure of a native, in profile, to the left; behind him are two circular spots of red. His hands are raised in front of the face, and hold some object from which proceeds a curved line. like a jet of water. On the head of the figure are three plumes, curving backwards, and at the back of his waistband are two others. Round the edge of the top is a line of red. Length of stick, 11·5 in.; diameter of disc, 5 9 in.; thickness, 1·6 in. From Murray Island (Rev. S. McFarlane).—*British Museum* (*Christy Collection*).

Fig. 3. Spinning top of white wood, with stout peg at the top; the body oviform. The whole cut with a knife, not made on the lathe. The string formed of a twisted piece of Manchester print. Height 4 in. Brought from Ritabel village, Timorlaut, Tenimber Islands, by Mr. H. O. Forbes. —*British Museum* (*Christy Collection*).

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Fig. 4. Teetotum or top. The body is formed of a section of cane 2·2 inches long, and 1·8 in. in diameter, having in the side an oblong opening cut through diagonally. The ends are closed with wooden plugs, and through the centre passes a stick 7·8 in. in length. From the Straits Settlements. Presented by the Commissioners for the Straits Settlements at the Colonial and Indian Exhibition, 1886. —*British Museum.*

Fig. 5. Teetotum or top, of similar construction and material to the last, with the exception that at the side the opening is small and roughly circular. Round the upper part of the stick is wound a slightly twisted cord. Length of stick, 8 in.; length of body, 3 in.; diameter, 2·2 in. Stated to have come from the Stewart Islands (Sakayana), Western Pacific. From the Godeffroy Collection, Hamburg. Presented by A. W. Franks, Esq., F.R.S. —*British Museum* (*Christy Collection*).

Fig. 6. Malay top (*gasing*) made of iron-wood (?), oviform in shape; turned on the lathe and having a small iron point. At the top is a projecting piece, below which the string is wound. Height, 3·6 in. From Selângor, Straits Settlements. Presented by the Commissioners for the Straits Settlements at the Colonial and Indian Exhibition, 1886.—*British Museum.*

The following Notes were presented by Lieut. Elton :—

NOTES *on* NATIVES *of the* SOLOMON ISLANDS.

By Lieutenant F. ELTON, R.N.

Introductory Remarks.

WHILE serving as a Lieutenant in H.M.S. "Diamond," on the Australian station, the idea occurred to me to get a little anthropological information about the natives in those islands of the south-western Pacific which contain cannibal inhabitants, and amongst which the ships of the English fleet in those parts spend most of their time.

It is usual to find in these island groups some solitary white man who spends his life among the natives, living in some respects as they do; drawing the line at cannibal practices, but taking more kindly to native ideas of domestic economy as to the necessary members of a principal man's household. Some-

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times these white men have no particular occupation or object in view, but more commonly they act as collectors of "copra" for some Queensland or other Australian firm, who send a schooner round at intervals of a few months to pick up the stuff for sale in Australia.

"Copra" is the name that has been given (I think by some of the natives) to the insides of cocoa-nuts. Vast forests of cocoa-nut trees fringe the coasts of the islands, and the natives, for a consideration, collect the nuts, break off the shell, and, cutting the inside into two or three pieces, pile up great quantities near the beach in the white man's grounds. Payment is made chiefly in tobacco and axes, for these natives understand so little of the value of gold or silver money that I have known a native, who received a sovereign from a trader in payment, shortly afterwards give the sovereign to another trader in exchange for an ordinary penny box of matches.

In the New Hebrides and the Solomon Islands I found one or two of these solitary copra collectors, and I propose this evening to lay before you the information I obtained from the one living among the Solomon natives. He was a German who had re-named himself "Howard," and he seemed an observant, thoughtful, and well-educated man. While very reticent as to his reasons for having left the Fatherland to take up his abode in this out-of-the-way spot, he was readily communicative about the manners and customs of natives around him.

Parenthetically, it may be said of these natives, as it has ere this been remarked about others, that "manners they have none, and their customs are beastly" in the matter of devouring each other.

During one of the periodical visits of H.M.S. "Diamond" to the Solomons, I wrote down a number of questions of an anthropological nature in a note book, and left the book with the German, asking him to fill in the answers to the best of his knowledge at his leisure.

Some months afterwards, the ship again called at this spot, and I received my book from "Mr. Howard" with most of my questions pretty fully answered. These questions and answers are now before the meeting, but as the exceedingly interesting exhibition of living specimens of the Australian aborigines has occupied most of the time at disposal, the matter must unavoidably be allowed to stand over till the printing of the Journal of Proceedings, in which the notes can be read in detail. I must say that the admirable little publication (too seldom used by travellers) named "The Admiralty Manual of Scientific Inquiry," was my guide in making these investigations.

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Questions and Answers relating to the Solomon Islands.

Question 1. What is the average height and weight of the people? A note of any extreme cases, large or small, will be interesting.

Answer. The average height is between 5 and 6 feet. The largest man I have seen on Ugi measured 6 feet 8 inches, his weight was 184 lbs. The smallest full grown man was, if I remember rightly, 4 feet 2 inches in height and his weight was over 90 lbs.

Corpulence is not prevalent among the natives of the Solomon Islands. I have only seen one corpulent man at San Christoval, and I should think that his weight exceeded 200 lbs. The average weight is between 120 and 150 lbs.: the natives are, on the whole, well made, and there are not many cripples among them.

Question 2. Is there any prevailing peculiarity in the shape of the head, especially about the upper and lower parts?

Answer. None that I know of. I have found a difference between skulls from Malayta and San Christoval.

Question 3. What is the usual colour of the eyes and skin?

Answer. The eyes vary in colour from a light to a very dark brown, just as the colour of the skin does. On the islands of St. Anna, San Christoval, Ugi, Ulava, Malayta, Guadalcanar, and Florida the colours of the skin varies greatly from a light copper colour to a very dark brown almost approaching black. The beach people on the island of Isabel are the same, while the bush people at the north end of the same island are of a remarkably light colour. They are very timid, building their houses in trees and only coming down to the ground during the day. The natives of the neighbouring islands, in New Georgia, &c., are enemies to them, and kill them in great numbers: they likewise carry them off for the purpose of making them slaves. The natives of the islands west of the Guadalcanar (namely, Savo, Russel Island, New Georgia, Corrystone, Choiseul, Shortland and Treasury group, and Bougainville) are mostly of a black colour, there being very few light coloured natives among them. A skin disease is very prevalent among the whole race; it is a kind of ringworm, the natives call it *Bucva.*

Question 4. The colour of the hair, and whether fine or coarse, straight or curled or woolly?

Answer. The colour of the hair is dark brownish originally, but they powder their hair with lime and red ochre, which changes the colour to a light reddish brown. On the island of San Christoval this custom is not in general use. The hair is

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soft and bushy, or curled in some instances, with a few exceptions of soft straight hair of a light brown colour.

Question 5. Is the head round or elongated in either direction? Is the face broad, oval, or of any other strange form?

Answer. There is no peculiarity in the shape of the head. The forehead is mostly low, in some instances high, and I find these the most intelligent, often the most villainous. The nose is flat and stubby in most natives, although I have seen some with a straight nose. There are some very pleasant features both amongst the males and females.

Question 6. Does infanticide occur, and for what special reasons?

Answer. On the island of Ugi and among the beach people of San Christoval it is a common thing to kill the children at their birth by digging a hole in the earth away from their habitations: the mother lets the child drop into the hole and covers it up immediately. They say that it is too much trouble to rear a child: they would rather buy a grown up child from the bush people for native money, who keep their children for the sole object of selling them to the beach people. On the other islands of the Solomon group infanticide does not occur, unless in an extreme case, such as the child being a bastard. On the island of Ugi the women often procure abortion. I have known several cases of three to seven months' pregnancy, where abortion was procured, but could never find out exactly what they used to procure the same. I am aware that there is a certain shrub growing in the islands, the leaves whereof they use for this purpose, by making a drink of them: likewise they wear tight bandages round their waist. There are only a few women who understand this, and they make rather a profitable trade by it. Of all the natives I have had intercourse with, I find the Ugi and San Christoval natives the most lazy and avaricious, likewise the most immoral. All young women, no matter whether a chief's daughter or a slave's, are prostitutes. In the western islands of this group this is not the case, there being prostitutes or *rambus* among them, but they are the slaves caught in warfare, any prostitution among the natives of the place being punished either by death or a heavy fine. On Ugi a native prefers in marriage a woman that is getting old in the trade.

Question 7. What is the practice as to dressing and cradling children? Are there any reasons connected with it tending to alter the shape of the head or feet or other parts?

Answer. There is very little to be said on this subject. The mother carries the child with her wherever she goes. The first

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six months the child is not taken out of the house, neither will the mother leave the house, the father doing all the household duties, if the family is not rich enough to keep slaves. They do not alter the shape of any part, except the nose and ears, which they pierce and then put little blocks of wood in them. The mother carries the child on the left hip in a sling thrown across the right shoulder.

Question 8. Are the children easily reared ?

Answer. A native never strikes his own child and concedes to all its wishes. As soon as the children are able to run about they are left to themselves.

Question 9. At what age does puberty take place ?

Answer. That is hard to say to a certainty. Natives do not keep account of their age. I should say 15 years.

Question 10. Are more than one child at a birth frequent ? Are there more boys than girls at birth; and in the tribes are there more men than women, or the reverse ?

Answer. I have seen twins, but I believe that it happens very seldom. Natives seem astonished when I tell them of white women having twins often. On some islands, especially on Ugi and San Christoval there are more men than women.

Question 11. At about what age do the women stop bearing children ? And for how long do they generally suckle them ?

Answer. I can hardly tell at what age, I should say at about 45 years. I have never seen a large family on San Christoval and Ugi. The most I saw was five children and they were born in the first 10 years of their marriage. The mother suckles the child until it weans itself at the age of about two years.

Question 12. What are the ceremonies and practices connected with marriage ?

Answer. In different islands there are different customs. On Ugi and San Christoval the practice is as follows:—If a man wants a wife, he cooks a dish full of yams and cocoa-nuts and carries it to the house of his bride elect, whence he returns without uttering a word. The next morning he returns to take the dish away. If the food has not been eaten, he is not accepted, and he takes this as an insult; if, on the other hand the bowl is empty and a couple of fathoms of money left instead of it, he is not accepted either, but the family wishes to keep on friendly terms with the suitor. Finally, if the dish be *entirely empty* he is accepted. The girl has very little to say in regard to her marriage, it being all arranged by her parents and friends. There is no ceremony attached to the marriage. The bridegroom takes the girl either to his house or goes and stays for a time with her parents, partly to show his ability to keep a

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wife, and partly to see what sort of housewife she will make. If he is not satisfied with the girl, he is allowed to return her to her parents, who have to pay the young man for keeping the girl. If, on the other hand, he intends to make her his wife, he pays to the girl's parents about 12 to 20 fathoms of Makua money and makes a large feast, at which great quantities of pork, opossum, fish, yams, taros, and cocoa-nuts, are consumed. The parents of the bride have to give a feast in return. If the husband at any time choose to send his wife back to her parents, they would have to return to him the money paid for her.

Question 13. Is more than one wife the usual thing?

Answer. On the islands east of Guadalcanar the natives generally keep only one wife, although polygamy is in use. Only a few chiefs are married to two wives. On the island of Guadalcanar and on all the islands west of it, men marry as many wives as they can keep. I know a chief in Port Fowler, by name of Goray, who is married to 34 wives and has over 70 children by them. They all live in a village by themselves. His eldest son is married to 10 wives and has got over 15 children.

Question 14. Do divorces take place; and are they frequent?

Answer. Sometimes, but not very often. When a man chooses his wife he knows her well and has been living with her before marriage.

Question 15. What is the usual food of the people; and what are their modes of cooking?

Answer. They live chiefly on yams, fish, and cocoa-nuts, and prepare these in different ways, by making a sort of pudding of yams and cocoa-nuts or of a small oily nut not unlike an almond. They possess pigs, dogs, cats, fowls, all of which animals they use as food, but they mostly feed on vegetables. They have taros, both cultivated and wild. They eat the leaves of different trees as salad or make soups of them. Their original cooking utensils consist of deep wooden dishes of different sizes, sometimes neatly carved and inlaid with pearl shell. They cook their food, wrapped up in leaves, between hot stones. If they make soup they put the ingredients into a dish and keep putting hot stones into it, until the water boils. The bush-people do so at the present time, but the beach people buy sauce-pans and other cooking utensils to boil their food in.

Question 16. How many meals do they take in a day? Can they go without food for any length of time? And are they able to work hard, or for any long time?

Answer. In a well regulated household they take two meals,

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at 10 a.m. and 6 p.m. Natives can go without food for a long time. If a relative dies, they taboo themselves from eating everything that grows underneath the ground, also from all saltwater fish; then they live on cocoa-nuts alone, with a few bananas occasionally. They are able to work hard for a long time. The natives of the Solomon Islands are highly prized in Fiji and Queensland, to which places they emigrate in large numbers, for their willingness to work.

Question 17. What is the usual style of dress; and what made of? Do they tattoo or otherwise alter their bodies for the sake of ornament or distinction?

Answer. The men all through the Solomon Islands cover their private parts only with a narrow strip of calico, or with leaves when calico is not to be obtained. The women dress differently on different islands. On the islands east of Guadalcanar single girls go entirely naked, but married women wear a little fringe made of the bark of a tree, as a distinction of their marriage. On Guadalcanar, Florida, and the islands west of them they wear petticoats made of banana leaves. In places where white men have not been or very seldom go to, the men will go naked also. They do not tattoo their bodies as a general rule.

Question 18. Are the people long or short lived? State any well-known cases of extreme old age.

Answer. I should say that they are not long lived as a rule. I know of only a few old people among the beach tribes of San Christoval. The natives have no idea what their age is. The oldest man I know, seems to be about 70 years of age.

Question 19. How do they generally treat the sick; and is there any superstition connected with the treatment?

Answer. They use no medicine of any sort, and sick people have to do the best they can for themselves. They believe that the devil or Atvoa made them sick. Some people profess to have intercourse with this spirit, and they are called for in case of sickness. Lime plays a great part in regard to driving the devil out of a sick person. The medicine man will take a pinch of lime and murmur a few words over it, put it after that into a small leaf and fasten it on some part of the patient. He takes as payment for his services either some Makua money or some tobacco. The natives on Ugi know the value of the medicines of the whites, and often come to get some from me. Still they must have the lime also, and generally they ascribe their recovery to the lime and not to our medicines.

Question 20. Are the people troubled with internal worms?

Answer. Children are, but not fully grown persons, so far as I know.

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Question 21. How are the dead disposed of?

Answer. In several ways. No matter what person or rank, as soon as any of the natives die, all the people of the village go to the house of the deceased and lament and howl there for two or three days: if a person of distinction, longer. After the second day the corpse, if of a slave, is wrapt in cocoa-nut leaves and taken in a canoe some distance off the beach, and there thrown overboard. If a person of distinction, he is taken into the bush, then laid on a platform and left until all the flesh has rotted off the bones, which are afterwards carefully gathered, put into baskets and hung up in their houses. If a chief dies, they keep the corpse near, or sometimes in the village, and two of his friends wash him every day until the bones are clean. They are then put into a basket, or sometimes placed in a coffin, made so as to resemble a shark, and put into the tamboo house. This is the devil of the natives. They offer to him the first fruits of the season, such as yams, taros, bread-fruit, cocoa-nuts, &c. If they kill a pig or have a feast the devil gets the first of everything that is cooked. They say they go at night and have intercourse with the devil, and all such nonsense.

Question 22. Is there any idea of a future state; and of what sort?

Answer. All they believe is that after death they are spirits, resembling the image, and can do what they like with the living persons.

Question 23. What is the usual kind of dwelling house?

Answer. The houses on the eastern islands of this group are about from 8 to 15 feet high; in the western islands they build them higher, up to about 40 feet. They all use the leaves of the vegetable ivory palm as thatch, and light wood or bamboo for sides. Some natives keep their houses tidy, but on the whole they are squalid and dirty. In every village they have at least one so-called tamboo house or *tohe*, generally the largest building in the settlement. This is only for the men, it being death for a female to enter there. It is used as a public place and belongs to the community. Any stranger coming to the village goes to the tamboo house and remains there until the person he is in quest of meets him there.

Question 24. Have they any monuments? What sort and what for?

Answer. They have no monuments of any sort.

Question 25. What are the domestic animals? Where did these animals first come from; and are they altered by the climate or food they live upon?

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Answer. They possess pigs, dogs, cats, and fowls. The natives confess that the pigs were brought here by white men a long time ago. They are of an inferior breed, with very long heads. Dogs, I believe, are natives of the islands. They resemble a fox more than a dog. They do not bark but howl, and live mostly on vegetable food. The natives are very kind to them. Cats and fowls have not been long among the natives. The predominating colour of the animals is a reddish brown.

Question 26. What is the kind of government? Any odd details about their religion, &c., &c., will be most interesting.

Answer. They have no established government. If a man is married and got a little money and a few slaves, he calls himself a chief, but does not exercise any power over his slaves; they do pretty well as they like. They recognise one or two as the head chiefs or *mani pina* in a village, but do not listen to them unless in a fight, or in any of their tamboos. The white trader's tobacco has more power than a chief's word. But should a chief put a taboo on anything, say, against eating yams or cocoa-nuts, they will observe it most strictly. If anybody dies, his relations are tabooed from eating anything that grows underneath the ground, likewise from all saltwater fish for the space of about one year or less, according to the rank of the deceased. They carve images and put them into their tamboo houses or yam plantations, and believe them to have power over all evil spirits.

Question 27. How do they note and divide their time? How do they carry on war; and what are their usual weapons?

Answer. They divide their time into days, months, and years. The days they note by the sun, the months by the moon and the year by the growth of a yam. Their warfare consists in treachery and surprise. They never stand in open fair fight. If they are not able to kill their enemy with one blow, they do not stop to give him another, but take to their heels. Their usual weapons are tomahawks, clubs, spears, and bows and arrows. They possess many guns, but I have heard of very few cases where men died by getting shot. Although the natives are very fair marksmen when cool and collected, yet in a surprise they fire off their guns without taking aim. Some time ago a native had a shot at me not 10 paces off, with intent to kill, but missed.

Concluding Remarks by Lieutenant Elton.

You will observe that in Mr. Howard's answer to my eighth question, he refers to the domestic bringing-up of the child and

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not to its progress in physical growth and strength, which was the sense of my question.

In reply to my fifteenth question as to the *usual* food of the people, he has confined himself strictly to naming the usual daily victuals and has not spoken of the human flesh they occasionally feast on; but he verbally informed me that the natives round him at Ugi now and then went over to the neighbouring island of Guadalcanar, and bought human victims for an approaching feast time; these victims being mostly women. These women were then taken away in canoes and regularly fattened in their purchasers' villages till the festive time. Then they were deliberately killed and eaten, just as fattened pigs would be.

When they happened to be fighting with neighbouring villages or tribes, they always feasted on any unlucky enemy they captured or killed; but these capturings and killings were not on a large scale, as these natives are exceedingly cowardly and timid fighters. Hence human flesh by purchase was more to their liking and more common.

MAY 10TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From H.E. the BRAZILIAN MINISTER.—Archivos do Museu Nacional do Rio de Janeiro. Vol. VI. 1885.

From ROBERT CUST, Esq.—The Origin of Primitive Money. By Horatio Hale.

From the AUTHOR.—The Oceanic Languages Shemitic. By Rev. D. Macdonald.

—— Canoes und Canoebau in den Marshall-Inselm. By Dr. O. Finsch.

—— Hausbau, Häuser, und Siedelungen an der Südostküste von Neu-Guinea. By Dr. O. Finsch.

—— L'Indice ilio-pelvico o un indice sessuale del bacino nelle razze umane. By Prof. G. Sergi.

—— Sul terzo condilo occipitale e sulle apofisi paroccipitali. By Prof. G. Sergi.

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From the AUTHOR.—Prebasioccipitale o basiotico (Albrecht). By Prof. G. Sergi.
—— Ricerche di Psicologia sperimentale. By Prof. G. Sergi.
—— Interparietali e preinterparietali del cranio umano. By Prof. G. Sergi.
—— Antropologia Fisica della Fuegia. By Prof. G. Sergi.
From the UNITED STATES GEOLOGICAL SURVEY.—Mineral Resources of the United States. Calendar Year 1885.
From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1886, Heft 6; 1887, Heft 1.
From the ESSEX FIELD CLUB.—The Essex Naturalist. No. 4.
From the SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. III. No. 5.
From the ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.—The Archæological Journal. No. 173.
From the ASSOCIATION.—Journal of the East India Association. Vol. XIX. No. 3.
From the SOCIETY.—Journal of the Society of Arts. Nos. 1797, 1798.
—— Proceedings of the Royal Geographical Society. 1887, May.
—— Journal of the Asiatic Society of Bengal. Nos. 272, 273.
—— Proceedings of the Asiatic Society of Bengal. 1886, December; 1887, January.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Band XVI. Heft. 3, 4.
From the EDITOR.—Nature. Nos. 913, 914.
—— The Photographic Times. Nos. 292, 293.
—— Journal of Hydrotherapeutics. No. 1.
—— L'Homme. 1887. No. 5.

Prof. FLOWER read a letter from Emin Pasha, dated Wadelai, 8th November, 1886.

Prof. VICTOR HORSLEY, F.R.S., delivered a discourse on "Trephining in the Neolithic Period," illustrated by numerous photographic transparencies projected on the screen by the oxyhydrogen lantern.

TREPHINING *in the* NEOLITHIC PERIOD.

By VICTOR HORSLEY, B.S., F.R.S., &c.

(Abstract).

THE object the author had in view was to obtain the criticism of the Anthropological Institute upon certain views which he had formed from a surgical standpoint, of the operative procedure of trephining as practised by the people of the polished stone epoch, and the reasons which led to its performance.

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After discussing the evidence which has now accumulated respecting the probable mode of operating, namely, whether it was done by boring, scraping, or sawing, he shewed reason for believing that in the majority of instances it was by means of sawing, and that in some cases this might have been supplemented by scraping. The evidence upon which these opinions were based was supplied by numerous photographs[1] of specimens in the Broca Museum and elsewhere.

The most usual seat of operation was next discussed, and in illustration of this part of the subject photographs were shewn of a skull upon which the author had marked in outlines, the margins of all the trephine openings of which he had been able to obtain specimens.

By means of this composite arrangement it was demonstrated beyond question, that in almost all the known instances of this practice the opening in the skull was made over that portion of the surface of the brain which is known to be more especially the seat of representation of movement. This region of the brain, moreover, is the seat of origin of that special form of convulsions which is known as Jacksonian epilepsy, and which so frequently follows injuries to the skull and brain. The anatomical grounds, therefore, for accepting the view that the operation was performed to relieve urgent symptoms of the kind mentioned would appear to be very strong.

But further facts of interest exist in this connection. This special form of epilepsy most usually commences with a peculiar sensation in one definite part of the body, whence it travels up the limb towards the head, this usually constituting the *aura* or warning of the onset of the fit. This factor is of special importance since it commonly happens that at the moment when the sensation appears to reach the head consciousness is lost. If, moreover, the mischief is occasioned by a depressed fracture there will be considerable tenderness at the injured place, and this becomes exaggerated at the period of convulsions. Putting these facts together with minor details of such cases too numerous to be mentioned here, the following mode in which the practice may have originated among so savage a people seems to be possible.

The tender cicatrix may have first been excised as the source of pain.

This probably would have produced a temporary benefit, sufficient to encourage the patient to undergo, in case of relapse, a further operation for the removal of bone.

[1] Prof. Horsley was very greatly indebted to the kindness of Prof. Duval and Prof. Topinard, who permitted him to take numerous photographs of the unique specimens under their care.

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This would in most cases be followed by relief, not merely of the pain but of the fits also.

Consequently the operation would gain a certain reputation for the cure of convulsions generally, and as such might have been frequently practised among savages to whom pain is of slight consequence.

The author then alluded to the various theories which have been promulgated to explain this interesting problem, and shewed reasons for not accepting them.

Discussion.

Sir James Paget, having been called upon by the President to open the discussion, said that he had studied the subject too little to speak on many of the points referred to by Mr. Horsley, but thought that he had shown the great probability that the opening of the skull was, in different instances, practised in all the three methods described by him. The sloping bevelled edges of some of the openings seemed sufficient evidence of the chiselling; the minute holes arranged in forms approaching circles indicated the drilling; the deep-cut narrow lines the sawing; and so far as he knew or had seen in the many dissected skulls in the Museum of the College of Surgeons and in other museums, there was none of them that made it probable that the changes illustrated by Mr. Horsley were results of disease. Openings in the skull, due to the growth of tumours within it, were not very rare, but in these the opening in the outer table was not larger, but often was smaller, than that in the inner, and there was no bevelling from the outer table to the margin of the inner. Necrosis of the skull due to disease might, when healed, nearly imitate some of the changes referred to the trephining; but such necrosis was rarely on only one spot on the skull. The specimens appeared to be excellent examples of recovery from operations which were, probably, far less dangerous to the rough uncivilised people on whom they were practised than they are now to the more cultivated races, even though these may have all the advantages of the skill and knowledge which are employed in modern surgery.

Sir Walter Buller, K.C.M.G., on being appealed to by the President, as to whether any form of epilepsy was common among the Maoris of New Zealand, said that such cases, if they did exist must be very rare indeed, for he could not remember having met with a single instance. He added that he had listened with much interest to Professor Horsley's excellent lecture, and that while looking at the limelight illustrations he was forcibly reminded of a Maori skull which had come under his own notice. The Maori to whom this skull belonged had evidently sustained a severe injury in the head, probably by a blow from a *tewha tewha*, or wooden *patu*, which had completely laid open his skull to the extent of several inches. It was evident that this had happened during life,

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and that the subject had survived the injury, because the sides of the long opening had become rounded over in the process of healing, as so well explained and illustrated by Professor Horsley. He knew nothing of the man's history, but it was clear from the condition of the bone, that he had long survived this terrible wound, and it was likely enough that he had afterwards died in the odour of sanctity. At any rate this very interesting skull had been preserved, and was, he believed, now in one of the Colonial museums.

Dr. PRIESTLEY said he felt in some embarrassment in being called upon to speak, as the subject of the paper was entirely new to him.

Mr. Horsley's communication was extremely interesting, and from the point of view suggested by the President, would, of course, have had additional interest if any mention had been made of the practice of trephining infants as well as adults. He had some recollection of having heard or read of the practice of trephining young children in prehistoric times, probably for convulsions and other like ailments, but the operation was then most likely undertaken, not for purely surgical reasons, but in the superstitious belief that the demon which caused the malady would thus be liberated.

It was well known that convulsions in children were relatively more frequent than in adults, and consequently if in former times it were the practice to trephine the skull for fits or other cerebral ailments in grown-up people, it might be inferred that the proceeding would more frequently be carried out in younger people.

As to the influence of the operation on infantile mortality, to which the President had alluded, he feared he could say nothing, as he knew of no records on the subject.

Dr. RYLE remarked that it was interesting to compare with the results of anthropological investigation the writings of the early medical authors. Trephining is several times mentioned in the works of Hippocrates. In some of his writings, about the genuineness of which there is no question, the date of which would therefore be about 400 B.C., he describes cases of head injuries which he had treated by trephining, and it may be noticed that although he had observed the association of convulsive movements on one side of the body with injuries to the opposite side of the head, he does not endeavour to localise by means of these movements the site of the injury, or the spot at which the trephine should be applied.

A still more interesting notice of trephining is found in the writings of Aretæus, the Cappodocian, who probably flourished about the second century of our era. He actually advises the use of the trephine for the treatment of epilepsy.

He does not apparently make the distinction which we now

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draw between traumatic and idiopathic epilepsy, but simply recommends trephining for severe cases.

His account of cranial operations is particularly noteworthy in connection with the description of the operations of the neolithic people which Mr. Horsley had given. For cases of simple pain in the head localised scraping of the bone down to the diploe was practised, but when epilepsy existed the trephine was employed. And it was employed in a peculiar manner. The operator was not to go deeper than the diploe, and was then to bring about the separation of the inner layer of the bone by the use of ointments and poultices. If we may allow ourselves to speculate upon the reasons which may have led to this practice, we may suppose that the two dangers which modern surgeons are familiar with in these operations, viz., direct injury of the brain or membranes by the trephine going too deeply, and hæmorrhage from blood vessels lying on the inner surface of the skull, were recognised by these early operators, and may have given rise to the method of operating which Aretæus describes. To remove this portion of the inner table of the skull after trephining by the slow process of necrosis and exfoliation of bone must have occupied a very considerable length of time. It would be interesting to know if there are any signs of this prolonged mode of operating in the skulls of the neolithic age.

Miss Buckland said that having had the advantage of hearing Dr. Broca's description of the trephined skulls in his museum, she wished to point out that Mr. Horsley differed in several particulars from that distinguished anthropologist. Dr. Broca had dismissed the idea that these neolithic trephinings had been resorted to for the relief of traumatic epilepsy, because he found no sign of depressed fracture either in the region of the operation, or in any other part of the skull, whilst almost invariably there were signs of growth, proving that the operation had been performed in early life, the parietal bones rather than the vertex being the favourite part for the operation. As regards the mode of operation, Dr. Broca had demonstrated that precisely similar openings could be made by scraping with a flint implement or piece of glass, and as this is the method still in use in the South Sea Islands, Miss Buckland believed that Dr. Broca's idea that the neolithic trephinings were thus performed was more likely to be correct, than that these oval openings could have been made by drilling or sawing, although both the latter modes are in use among the Kabyles, who possess metal instruments; but the fact that where the saw is employed, a square is marked out as in Peru, would prove the practice to differ from that in use in France in neolithic times, no square lines being observable, so far as she knew, on the French trephined skulls. That these openings were made to facilitate the exit of evil spirits who had caused the epilepsy or infantile convulsions, seems probable from the fact that in all ages such seizures were regarded as the work of evil spirits, whilst the use of cranial amulets as

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charms against such diseases, was not confined to neolithic times, but exists even at the present day, as witnessed by an article in the "English Illustrated Magazine," where it is related that a cranial amulet in Perugia is greatly venerated, as having belonged to a holy man who had been famed for the cure of epilepsy, and it is suggested that pieces had been cut from many skulls in the cemetery in that city for similar uses. Among the Kabyles the operation seems to be regarded as a religious rite, and there would appear to be so little danger apprehended from it that a case is recorded in which a man was trephined five times in as many years and yet survived.

Prof. E. Tyrrell Leith remarked that he thought greater attention should have been directed to primitive psychology in seeking an explanation of the custom in question. He referred more especially to the doctrine of spirit possession, which had not, unfortunately, been hitherto treated as adequately as its great importance deserved. He ventured to suggest that considerable light would be thrown on the custom by comparing it with another, which had survived in India down to modern times. When a Sanyasi, or Brahman ascetic, felt himself at the point of death, he caused himself to be seated in an open grave, which was filled in with salt. At a given signal his skull was broken with a cocoanut or stone by a chosen disciple, and earth was then hastily heaped upon him. That rite, he believed, must have originated in the idea that as speedy an exit as possible ought to be provided for his soul, which, according to a dogma of Hindu philosophy, resided in the top of the head. In the stage of human progress known as Shamanism, all disease was attributed to demoniacal possession, and the Shaman, or medicine-man, was accordingly called in to effect a cure by expelling the evil spirit with the aid of incantations. No cases afforded the savage mind more striking proof of demoniacal influence or the efficacy of magical cure than epilepsy. It seemed, therefore, highly probable that the process of trephining had been employed by primitive man in order to expel the demon who possessed the patient, especially in cases of epilepsy. Such an explanation was not necessarily opposed to the theory propounded by Prof. Horsley regarding the empirical discovery of a cure for traumatic epilepsy by removing such portions of bone as pressed upon the brain in fracture of the skull. He submitted, however, that a higher degree of probability existed in favour of his own hypothesis, as it was more in accordance with the mental process observable in savages at the present day. It had been stated in the paper that in two of the specimens examined it was doubtful whether trephining had been performed during life. Even supposing it had not, that fact was quite compatible with his hypothesis, for it was a common belief among the lower races that the soul remained in the body for some time after death. As regarded the suggestion that the operation might have been employed for the purposes of embalming, he would merely remark

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that he did not remember to have met with any description of its use in ancient Egypt. He had always understood that, in the case of Egyptian mummies, the brain was extracted by means of hooked instruments through the nostrils.

The PRESIDENT said that although the author of the paper and M. Broca had both ignored the possibility of an instrument like the modern trephine having ever been used to cut circular discs out of the skull, it might be well to bear in mind that such instruments were largely used by the ancient Egyptian stone masons for hollowing their sarcophagi. These were proved by Mr. Flinders Petrie to have been bronze tubes, set with teeth of very hard stones or jewels; the fact that they were bronze being evidenced by the marks they had left, and the hardness of the jewelled teeth by the depth of the successive cuts in the stone cores that were still to be seen in some of their unfinished works. In fact, the Egyptians were masters of the art of trephining. It would be interesting to know whether, as he believed he had somewhere read, trephining was one of their numerous surgical operations, and, if so, whether there was any evidence of the holes having had vertical edges. Of course, a trephine on the same principle, would easily be made by rude people with tubes of other material than bronze, and with flint teeth.

As regards the motives for trephining, he felt some difficulty in accepting the very ingenious hypothesis of the author, partly because it implied more intelligence than savages usually shewed. In their surgery and medicine they were apt to proceed in a very off hand, ruthless, and unintelligent manner, following their fancies and superstition rather than experience. Another difficulty that he felt was, that he had no recollection of travellers speaking of traumatic epilepsy among savages. Sir Walter Buller had told them that he had never heard of it in New Zealand, and he himself had never heard of it in South Africa, though heavy blows, not unfrequently murderous ones, and very often half murderous, were inflicted by their so-called "knob-kerries." Perhaps it was owing to that hardness of constitution, on which Sir James Paget had made such interesting remarks, that savages were more exempt from the risk of traumatic epilepsy than ourselves. It would be very important to know precisely what are the motives that prompt trephining the skull among those rude races where the practice still exists.

Prof. HORSLEY, in reply, desired to thank the Institute for the very kind manner in which it had received and discussed his views.

It was impossible to accept Miss Buckland's rendering of Prof. Broca's view, for square lines and distinct saw cuts are observable on the French trephined skulls.

Prof. Leith's view that possibly it was performed in cases of ascetics or medicine men at the time of death is one well meriting further investigation.

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MAY 24TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From GEORGE W. BLOXAM, Esq., M.A.—Proceedings of the Athenæum Society. No. 4.
From the AUTHOR.—Les Peuplades de Madagascar. By M. Max Leclerc.
—— Une Nouvelle Force? Première et deuxième communications. By J. Thore.
From the SOCIETY OF ANTIQUARIES.—Archæologia. Vol. L. Part I.
From the KONGL. VITTERHETS HISTORIE OCH ANTIQVITETS AKADEMIEN.—Antiqvarisk Tidskrift för Sverige. Del. ix, Nr. 1, 2; Del. x, Nr. 1.
From the FREE LIBRARY COMMITTEE OF THE BOROUGH OF GREAT YARMOUTH.—First Annual Report. 1886-87.
From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, AND URGESCHICHTE.—Correspondenz-Blatt. 1887. No. 4.
From the SOCIETÀ ITALIANA DI ANTROPOLOGIA, ETNOLOGIA, E PSICOLOGIA COMPARATA.—Archivio per l'Antropologia e la Etnologia. Vol. xvi, Fas. 3.
From the INSTITUTION—Journal of the Royal United Service Institution. No. 138.
From the SOCIETY.—Journal of the Society of Arts. Nos. 1799, 1800.
—— Proceedings of the Royal Society. No. 253.
—— Journal of the China Branch of the Royal Asiatic Society. Vol. xxi. Nos. 3, 4.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Band xvii, Heft 1.
—— Schriften der Physikalisch-ökonomischen Gesellschaft zu Königsberg i. Pr. 1886.
From the EDITOR.—Nature. Nos. 915, 916.
—— Photographic Times. Nos. 294, 295.
—— L'Homme. 1887. No. 6.
—— Revue d'Anthropologie. 1887. No. 3.
—— Bullettino di Paletnologia Italiana. 1887. No. 3.

The following Paper was read by the Author:—

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COMPARISON *between the* RECUPERATIVE BODILY POWER *of* MAN *in a* RUDE *and in a* HIGHLY CIVILISED STATE; ILLUSTRATIVE *of the* PROBABLE RECUPERATIVE CAPACITY *of* MEN *of the* STONE-AGE *in* EUROPE.

By Dr. GEORGE HARLEY, F.R.S., Ex-Professor in University College, London.

THE collating of the data constituting this communication—illustrative of the relative recuperative bodily capacity of men in different positions of life—suggested itself to my mind by Professor Horsley having demonstrated[1] in his discourse, delivered at the last meeting of the Anthropological Institute, that rough, unlearned men of the European stone-age, had successfully performed operations on the skulls of their associates, which if done nowadays in the same way, and by the same means, upon highly civilised men would inevitably kill them.

The success of the neolithic man in removing large portions of the bony covering of so delicately constituted an organ as the human brain by scraping, chiselling, or sawing it away with rude stone implements, appears all the more extraordinary when we reflect that the generally entertained idea is that the modern inhabitant of Europe vastly excels his predecessor of the neolithic period, both in bodily physique and mental power, surpassing him alike in stature and in strength, as well as in longevity. Consequently one would expect, other things being equal, that men of the present period would be able to endure better and recover quicker from bodily injuries, whether accidental or intentional, than their less powerfully built neolithic predecessors. As the result of Professor Horsley's researches, however, apparently prove that the reverse is in reality the case, it becomes an interesting point for us to determine whether or no, in spite of the men of the stone-age in Europe being both smaller and muscularly weaker than the present inhabitants of the same localities, they were not actually possessed, for some reason or another, of a much greater bodily recuperative capacity than their more highly developed civilised successors.

On personally communicating to the President my opinions on the matter, he suggested that it might be advisable for me to embody them in a paper, and communicate it to the Anthropological Institute. I have followed his advice, and am now doing so, in the hope that after my ideas on the subject have

[1] "On the Operation of Trephining during the Neolithic period in Europe; and on the probable method and object of its performance." See *Ante*, p. 100.

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been heard, some of the gentlemen present, whose opinions are of weight in all questions of this kind, may, while commenting on the communication, throw out additional fresh ideas which will materially aid us in arriving at least at some plausible, should we fail to find a perfectly satisfactory, solution to the above-named apparently human constitutional enigma.

This communication, however, has not solely that object in view, but also the equally important one of directing attention to the vital degeneracy of the present race of Europeans, as regards their bodily recuperative capacity.

In order to save time, and to make my views perfectly plain, I shall at once present them in the form of a proposition, and then proceed to adduce, as succinctly as I can, the facts that appear to me to form a sufficiently substantial basis to warrant my entertaining them.

My proposition is simply, that I believe, that in spite of men having increased in weight, stature, and strength, as well as their years of life having been augumented by their evolution from a state of barbarism into one of *bien séance* and refinement, their bodily recuperative powers have materially diminished instead of having increased under the otherwise improving influences of civilising agents.

Indeed, as far as I have been able to discover, all the facts one is able to collect appear distinctly to prove that every appliance adding to man's bodily comfort, every food pampering his palate and exciting his appetite, as well as all contrivances either stimulating or developing his mental faculties and powers of perception, while adding, no doubt, to his personal enjoyments, have a direct deteriorating influence on his animal vitality, rendering him less able to resist the lethal effects of bodily injuries, or to recover from them either as quickly or as well as individuals of the same race and temperament not having similar corporeal and mental advantages.

Before proceeding to adduce data in support of this opinion it may be advisible for me to say that I imagine our surprise at the superior recuperative powers of the men inhabiting Europe during the stone-age, in a great measure arises from our somewhat erroneously confounding together, and regarding as synonymous, two entirely distinct and mutually independent physiological factors, namely, muscular strength and bodily recuperative power; the fact being that high muscular development may be associated with but moderate recuperative bodily power, and an extremely high recuperative bodily power with a relatively-speaking moderate physical strength. To take extreme cases by way of illustration, I may refer to what is observed in the crustacean and saurian species; as both of them demonstrate

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the fact that comparatively speaking feeble animals, low in the scale of development, possess a remarkably high recuperative bodily power. A crab, for example, can regenerate a lost toe, and a lizard restore an amputated tail.

With these preliminary observations I now proceed to adduce proof that the refining influences of civilisation deteriorate human recuperative bodily power; and in order to show this clearly I shall first call attention to the relative recuperative powers of man living in a wild and in a highly civilised condition. As the cases that have already been published illustrating this point are most probably known to you all, I shall refrain from citing any of them, and limit my illustrations to such as I have been able to collect myself. Moreover, as time is of moment I shall only give two examples of each kind, selecting those that I deem the most conclusive; and in order that they may be all the more telling I shall choose them from two distinctly different races of savage men, who, from living far apart, in different hemispheres of the globe, and under entirely different climatic influences, may be supposed to possess but slight, if any, constitutional similarity. The one race, therefore, will be that of the South African Caffre; the other that of the North American Indian.

First then as regards the recuperative bodily power of the male South African Caffre living in a rude state. The case I select is one furnished to me by Colonel Alexander Moncrieff of an injury which, before the days of antiseptic surgery, was regarded as one of the most formidable and dangerous to life to which any human being could be subjected. It is as follows:—

A Caffre of about thirty years of age was so badly gored in the abdomen by a bullock that his bowels fell out. One of his companions went to his assistance; gathered up the bowels; washed and freed them from the dirt which had become attached to them while they were trailing on the ground; replaced them in the abdomen, and closed up the wound as best he could. And what was the result? Simply that the wound healed by "the first intention," and the injured man was well and again following his usual avocations in a few days.

Now for the case of a North American Indian. While I was passing from the rugged volcanic geyser district of Montana into the fertile plains of the Columbia River in Oregon, in 1884, the conductor of our train pointed out a one legged Indian, standing at the depôt, whom I mistook for a woman, from his being like the squaws, as devoid of hair on his face as they are of projecting bosoms, and not alone being dressed in a similar costume, but wearing his head-hair in the same long and lank fashion as the women do. This man, the conductor said, had

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hacked off the lower part of his own leg with a tomahawk, in order to extricate himself from a crane, and afterwards crawled more than a mile to his wigwam before he could get assistance. Yet in spite of all this, he was able to hobble about, minus his leg, within a fortnight.

The two next illustrative examples of recuperative bodily power will be that of savage women, and for this I purposely select them in the form of recoveries from childbirth. Childbirth being an identical physical process in all members of the human species, the comparative effects of it in a savage and in a civilised state admits of easy and definite comparison.

It may, I think, be pretty safely said that it takes an average healthy woman, not being a primipara, in the middle ranks of European life, from four to fourteen days to recover from the immediate effects of a natural accouchement. Here then are two examples of the amount of time rude savage women require to recruit from the same undertaking.

The following case was furnished to me by John Mintern, an intelligent man, who acted as my class servant during the time I filled the Chair of Medical Jurisprudence at University College, London. It fell under his notice while he was travelling in Africa along with the late Sir Andrew Smith, as his personal attendant. Mintern said that one morning while they were sitting at breakfast a young Caffre woman, who formed one of their party, rose up and left them, and soon after they had finished the meal, and were preparing to start on the track, returned to camp with a face beaming with smiles, and a new born baby in her arms. I asked Mintern how long he thought she had been absent, and he replied that, although he could not say positively, still judging from the time they usually took to their meals, he did not think she could have been away altogether more than half-an-hour. Yet during that time she had not only delivered herself but attended to her baby. The next case is one of a North American Indian, kindly furnished to me by Mr. Charles Roberts. I give it in his own words:

"When crossing the Rocky Mountains, in Canada, in 1873, the squaw of our Shuswap Indian guide, who usually marched at the head of our party, dropped behind, and thinking she was unable to keep up with us, as she was heavily laden, with her husband's gun in addition to camping necessaries, a halt was ordered and we began pitching our tent. Before, however, we had time to accomplish this the squaw rejoined us with a newly born infant added to her luggage, and apparently in a perfectly fit state to travel. She had certainly not been absent from the party for more than an hour, during which time she had been confined without any assistance whatever, with not even so

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much as the companionship of her lazy husband. On our proceeding on our journey on the following morning the woman took up her usual place as leader of the party, carrying her ordinary load in addition to her newly begotten child, and marched along without showing signs of either weakness or fatigue."

I shall now endeavour to show that this apparent super-recuperative animal power, possessed by savage women, has most probably nothing whatever to do with any innate constitutional peculiarity, but arises solely from the fact that the savage, owing to her mode of life, retains the natural *aboriginal* bodily recuperative capacity of the human species, which highly civilised woman has lost, by reason of her refined mode of living.

This doctrine appears to be demonstrable by the fact that women of the same race, living in the same locality, manifest entirely different degrees of recuperative power after child-bearing, according to their habits and positions in life.

One of the best proofs of this, which it is in my power to cite, came under my own observation while I was spending my autumn holidays at Meopham, in Kent, during 1870.

While taking a walk one day, at the commencement of the hop harvest, I was accosted by a female tramp, of about forty years of age, carrying a newly born infant, rolled up in a rag, of which, she informed me, she had a few minutes before delivered herself, on the other side of the hedge. She asked me to direct her to the nearest workhouse. Seeing that the baby had not a particle of clothing upon it, and that the nearest workhouse was at least seven miles away, I directed her to a farm-house not more than a quarter of a mile distant, to which she immediately repaired. On the following morning I called at the farm, with the view of assisting the woman, and on my arrival was told by the farmer that she had started early in the morning, to walk to Gravesend, which being little more than six miles off, he assured me, she would easily reach within a couple of hours, adding, that she had promised to return to his hop picking in a day or two, speaking as if he was quite accustomed to that sort of thing, and had not the slightest doubt that the woman would be both able and willing to fulfil her promise.

The maternity feat of this tramp is yet eclipsed by that of a Scotch woman living at Campsie, near Glasgow. It was related to me by Mr. Mortimer Evans, in the following words:

"In 1879, a woman, aged 28, while engaged in washing, outside her cottage door, was seized with labour pains. She went into the house, delivered herself of a living child, and immediately afterwards returned to the tub, and finished her washing."

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What gently reared Kentish or Lanarkshire lady would be found capable of accomplishing feats like these? Not one, I think, and yet they are of the same flesh and blood as their less pecuniarly favoured sisters, whose recuperative bodily powers, in my opinion, they have good reason to envy.

In further proof that the refining influences of civilisation diminish animal vitality, notwithstanding that they improve both physique and longevity, I shall give examples of the degeneracy of bodily recuperative power in members of what in ordinary language are denominated lower animals. Not, however, from the lowest, but from the highest groups of the brute creation, and from those, too, with which we are most familiar in a state of domestication; namely, the sheep, the ox, the horse, and the dog.

First, as regards the detrimental effects to maternity of fine breeding upon sheep.

Mr. Alfred Morrison tells me that such is the bodily recuperative degeneracy produced in pedigree sheep by high breeding, that his celebrated flock of Southdowns cannot be left to lamb by themselves. Having not only to be carefully kept in a covered fold during the lambing season, but in many, nay, even in most instances, the ewes have to be artificially assisted by the shepherds while in the act of dropping their lambs.

While as regards pedigree oxen, Mr. Morrison further informs me, that in many cases high bred shorthorns have their animal powers so deteriorated, through the influence of fine rearing, that most of the cows among them fail to yield sufficient milk for the wants of their offspring.

Next with reference to horses. It is well known to veterinary surgeons that a sturdy mountain pony will not only tolerate, but rapidly recover from an operation which would produce a great shock to the system, and might probably even prove fatal if performed on a high class thoroughbred race horse.

Lastly, my own experience with dogs has taught me that the delicately reared Italian greyhound will succumb to an operation which a roughly brought up mongrel cur may feel so little the effects of, that immediately after it, he will partake of food, and then quietly coil himself up and go to sleep in front of the fire, as complacently as if nothing had been done to him.

I might go on multiplying corroborative examples, did I not imagine that those already cited are both numerous enough and conclusive enough to form a substantial basis to the somewhat paradoxical-like sounding proposition I set out with, namely, that in spite of civilising influences being potent agents in improving man's physical as well as mental powers, increasing alike his stature and his strength, as well as extending his

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length of days—they are, like the rose, associated with a prickly thorn, inasmuch as *pari passu* with the ameloriation of his mental and physical condition, they materially diminish, instead of augment, his bodily recuperative powers.

Discussion.

The President mentioned some facts published in his own book of travels, showing the extraordinary power of South African natives to endure severe injury. He mentioned the great difference well known to sportsmen, between the powers of various species of animals to survive wounds; thus, a heron would collapse on receiving a few pellets of shot fired from a gun at a long range, but a hawk was killed with difficulty. It would be a matter of interest to learn if there were any connection between recuperative power in respect to wounds, and general longevity. The author's remark that animals of a high "breed" had small recuperative power, seemed to require a little further analysis owing to the double sense in which the word "breed" was commonly used. That in which it was employed by the author seemed chiefly to regard their more delicate nurture. But etymologically it was more properly applied to descent, and here the loss of recuperative power was in a general way intelligible, because any variety of animal that had been long bred from selected specimens with a view to develop some particular quality, might be expected to be rather deficient in others, and, therefore, to have on the whole a weaker constitution than that of the parent stock.

The Author, in reply to the questions put to him by the President, remarked that the different bodily recuperative powers possessed by such birds as the heron and the hawk, were, he thought, readily accounted for by the fact of different species of animals possessing marked differences of constitutional vitality. It was not so easy, however, either to give a reason for the relative differences in the bodily recuperative powers of different members of the same species or of the relative different recuperative bodily capacity of the same individual under different circumstances. Some of the channels by which civilising influences act on the animal constitution are tolerably apparent, while others are exceedingly obscure. To him it appeared that the superior recuperative bodily powers of savages, and of men, not savages, living in any rude state, in comparison to highly civilised men, were not due to any gain in the case of the former, but to an actual loss of the *aboriginal* recuperative power of the human species in the latter. Man, he thought, was naturally born to endure hardships, and it was only on account of the cultivation of an artificial refined state of existence that he was led to regard many natural conditions of existence as hardships at all. For instance, while crossing the Rocky Mountains, in Idaho, in 1884, he and his party came, one morning, upon four "Flathead" Indians sleeping on the hard rough stones by the margin of a

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river. It having been a cold frosty night, they had lain down side by side and placed their blankets one on the top of the other over them for better protection from the cold, and nothing but their four black heads projected beyond the covering. To all appearances these men were sleeping as comfortably on the rough stones as we would do in a feather bed. Probably, indeed, if accidentally transferred to a feather bed these Indians would have felt less comfortable. For, by a wise dispensation of Providence, comforts which one has never enjoyed one never feels the disadvantage of being without. What is even more fortunate, is that such is the peculiar constitution of man that he can adapt himself, and get accustomed to almost any form of hardship. Thus, to his personal knowledge, the late Mr. Charles Waterton, the South American traveller, of "the Wanderings" reputation, habituated himself to sleep for 25 years of his life on the hard, bare boards of the floor, with a block of wood for a pillow, and a cocoanut mat for a coverlet. This is surely a more astounding feat than that of the American savages, who never knew anything better, sleeping on hard stone boulders; seeing that it was not until after Mr. Waterton had reached manhood's estate, and after he had been accustomed to all the luxuries of an English country gentleman's life that he voluntarily adopted the above mentioned rude mode of taking his nightly rest.

Hardships, he believes, have the effect of retaining to savages, as well as civilised men living in a rude state, by strengthening the constitution, the *aboriginal* recuperative bodily capacity of the human race; while, on the other hand, warm clothing and comfortable housing, rich feeding and late hours, heated rooms and polluted atmospheres, more especially when associated with little muscular out-door exercise, have the direct effect of enervating the human frame and reducing its bodily recuperative capacity to far below the normal standard.

The agent which most of all lowers human bodily recuperative capacity is, in Dr. George Harley's opinion, alcohol. Medical men have been long cognisant of the fact that men who are in the habit of imbibing alcoholic stimulants, either in the form of wine, beer, or spirits, even though not drunkards, are much less able to withstand the lethal effects of bodily injuries than those who never drink them; while the recuperative powers of those who indulge in stimulants in excess are well-known to be reduced to a minimum. It is a well recognised fact for example, that no patient that enters the surgical wards of a hospital with a severe injury has less chance of recovery than the big, powerfully built, muscularly strong brewer's dray-man. Not only does he recover from wounds badly, but he attracts erysipelas readily, and spreads infection rapidly.

The effects of living in impure air is again well exemplified in the case of the young Resident Medical Officers in hospitals, one and all of whom, more especially if their animal vitality is still further lowered by over study, have their recuperative bodily

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capacity sometimes deteriorated to such a degree, that if they get a flesh wound, it is almost certain to become a suppurating sore, and so bad an one too, that notwithstanding the application of all the most powerful therapeutic agents in the pharmacopœia, it will sometimes resist healing so long as he lives under the hospital roof; whereas it heals rapidly, without assistance from either balm or lotion, so soon as he transports himself into the pure, strong, fresh air, either of the seaside or mountain top.

In this we see that a mere change in physical conditions creates a change in bodily recuperative capacity. But the most remarkable fact of all is, that highly civilised man has it in his own power, not only to bring his recuperative bodily capacity up to but even far beyond that of the standard of either the savage, or of the civilised typical man living in a rude state. This he rendered apparent by calling attention to the marvellously high bodily recuperative capacity encountered in cases of civilised athletes after "a course of training;" the salutory regimen of the training process having the effect of bringing them up to the highest state of physical perfection a human being can attain to.

This can be most readily illustrated by referring to the artificial changes brought about in the human constitution, as witnessed in the case of prize fighters. And it will be best exemplified by a brief narrative of what Dr. Collins told him regarding what he observed in the case of the American pugilist, Heenan, who fought with the British "champion of the ring," Tom Sayers. The fight, as some may have heard, was a desperate one, and in the evening after it, on Dr. Collins visiting Heenan, he found him so disfigured about the face as to be scarcely recognisable as a human being. His eyes were totally invisible, his brow, cheeks, and lips swollen, bloated, and black. Not a vestige of a human feature remained. Yet, what happened? So high had the vital recuperative capacity of this man been raised by diet and exercise, that within four days all the swelling had completely subsided. And ere other four days had passed away the whole of the effused blood had been absorbed. Every trace of the ecchymosis had vanished, and the man's features were completely restored. It is impossible for any one, possessed with medical knowledge, for a moment to doubt that these startling results could have been due to anything else than a super-recuperative bodily vitality engendered by the hardening of the general system by training.

Having said this much it will not do to leave the subject without adding a short addendum on the probable causes of the loss of recuperative healing power on child-bearing women living in a highly civilised state.

All know that exercise increases the size of human muscles, and that an increase in the work done by the muscles entails an increase in the size of the bones to which they are attached. It may be equally accepted as a physiological doctrine that a disuse in the muscular apparatus of the human frame entails a diminution

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not alone in the muscles themselves, but also in the bones to which they are attached, and which they consequently employ as fulcra during their action. Hence it is readily seen why, not only all the muscles of the body and the bones of the pelvis as well as the bones of the hands and feet in delicately reared women, are smaller then in those accustomed to manual labour. Now in addition to this smalling of the muscles as well as of the bony outlet of the pelvis tending to impede natural labour, there exists yet a further increase to the difficulty of parturition in the refined woman, from the fact that her own augmented education induces a *pari passu* increase of cerebral development (by reason of hereditary transmission) and consequent increase in the circumference of the head of her offspring. So that there is thus a double reason why refined and highly civilised women should have more difficult labours, and less bodily recuperative capacity after them, either than savage women, or their less favoured civilised sisters, living in a rude, uneducated state.

Moreover, the changes in the frame of a highly educated woman and her offspring, brought about by the refining influences of a high civilisation, become more and more marked through generations of hereditary transmission. Just as the rats in the Mammoth Cave, and the fish in the Adelsberg grotto, have become blind, by generations upon generations of their ancestors having never had occasion in their dark underground dwellings to use their organs of vision, so in like manner, the bones, as well as the muscles of men and women, from a partial disuse of them in several generations of their ancestors, became smaller. The diminution in the size of the bones and muscles of the hands and feet, engendered by an absence from hard labour through several generations is, in fact, so apparent that it has given origin to the proverb that—

> "In little hands and feet we trace
> The scions of the higher race."

What holds good for the muscles and bones of the frame holds equally good for the brain and the internal organs of the body. So that just as the features of the face are transmitted from parent to child the mental qualities and internal (invisible) organisation is as well. Hence we find that "constitution" is handed down from sire to scion, be it bad or be it good, just as physiognomy is. One is not surprised then at hearing that the naked Terra del Fuegian woman transmits to her babe her own power of enduring with immunity an exceedingly low temperature. To such a high degree too is this the case that her naked infant, but a month or two old, will lie unconcernedly smiling and crowing at the bottom of its mother's fishing canoe, while cold snow flakes are falling upon, and melting from off, its bare skin. A counterpart to this fact is related at p. 224 of Mr. Seton Karr's "Shores of Alaska," where he gives a sketch of a little child of the Oodiak tribe of Indians, who, clad in nothing but a short cotton shirt, with bare feet, legs,

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and head, walked across the Nuchuk mountain pass mid snow and ice with perfect impunity.

These two cases cannot but be regarded as truly typical specimens of transmitted hereditary bodily capacity to endure hardships. For here we have the children of two entirely different races of men—one in the north of North America, the other at the extreme south of South America—enduring with impunity a temperature of the atmosphere so low, that if the children, similarly aged, of a highly civilised European were subjected to it, they would inevitably shiver, freeze, and die in the space of an hour or two.

These cases, Dr. George Harley thought, afforded additional evidence that a high standard of bodily recuperative power is naturally inherent in the human race, while the formerly cited examples of an opposite character, go far to show that the refining influences of civilisation have in reality not proved such an unalloyed boon to mankind as is usually imagined, and that all the present races of men, though they may be of the same flesh and blood, are not endowed with the same degree of bodily sensibility and recuperative vitality, and while they may be further said to account for the well known fact that the present race of delicately nurtured women are the victims of *migraines*, and neuralgias, which were as much unknown, even by name, to their great grandmothers, as they are to the present races of out-door labourers and uneducated savages.

The following paper was then read by the Author:—

On the EVIDENCE *for* MR. MCLENNAN'S THEORY *of the* PRIMITIVE HUMAN HORDE.

By G. L. GOMME, Esq.

WHEN we come to look into Mr. McLennan's evidence, and to examine his theory on the origin and development of social forms, we are struck by the fact that he nowhere states the evidence for his first stage—the primitive human horde. He starts "from the conception of populations, the units of which were homogeneous groups or tribes," and which did not possess any system of blood kinship[1]; but beyond the fact that the assumption thus made fits in remarkably well with all the later stages of his theory, which are amply supported by evidence, he does not critically examine the evidence for the primitive horde. Even the title—the horde—which I have ventured to assume is

[1] Studies in Ancient History," pp. 127, 153.

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that which best expresses Mr. McLennan's meaning, is only used by Mr. McLennan himself incidentally; and occasionally, as in the quotation just used, it gives way to the less exact terminology of "populations," "groups," or "tribes."

It is singular that not only Mr. McLennan himself, but none of his able critics has definitely met the proposition which the theory of the primitive human horde clearly places before us. It is just possible that when Sir Henry Maine appeals so forcibly to biology and to savage society for examples of his own theory of parental groups against Mr. McLennan's theory of the horde, he may have in his mind exactly that large body of evidence which Mr. McLennan has left untouched. But then Sir Henry Maine does not proceed to examine this evidence.[1] Nor does Mr. Lang, the greatest living authority who supports Mr. McLennan's theories.[2] In fact, almost all the enquiries which have taken place since Mr. McLennan's researches directly opposed those of Sir Henry Maine, have been bounded and limited by the theory that the earliest social unit was necessarily the family.[3] The family appears in history, in its most archaic form, as the unit of the genealogic tribe. But the tribe, made up of these family units, is just then entering upon its career in the formation of nations—is, in fact, just on the threshold of modern history. And at the back of this union of families is that large body of custom, whatever it may prove to be, from which kinship-formed tribes were developed. Under whatever form of society this body of custom existed, there is no part of it which entitles us to use such a term as "family" in connection with it. It was not a family unit in independence; it was not a group of family units bound by kinship ties. If, therefore, we may properly dismiss the term family as a scientific appellation for the earliest group of human beings, and if we may consistently call it the horde, borrowing the term from Mr. McLennan, we shall, at least, be clearing the way to prevent a misconception from a confusion in terminology. It may be as time goes on, and, as evidence increases, that some modifications in the conception of the horde will arise; but the point to be insisted upon now is that the term horde does not convey any special associations with modern history, and that it most probably will, therefore, gradually assume the meaning with which scientific research will in future endow it.

Mr. McLennan's conclusions, derived, be it observed, from

[1] *See* "Early Law and Custom," p. 192.

[2] "Early History of the Family," in his "Custom and Myth."

[3] *See* Mr. C. S. Wake's article on "The Primitive Human Family," in the "Journ. Anthrop. Inst.," vol. ix; and Mr. Lang concedes this point to Sir Henry Maine, in his "Custom and Myth."

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phenomena found to exist in savage races inhabiting all parts of the world, may be shortly stated as follows :—

1. That the earliest human mode of living recognised no basis of blood relationship, the association between the sexes being best described by the term promiscuity, and the children at this stage belonging to the horde.
2. That there existed within the horde the conception of stocks, such stocks being found to be always exogamous, *i.e.*, the members of any stock may not marry within their own stock, but must obtain wives, or husbands, from other stocks.
3. That the scarcity of women produced a rude system of polyandry, *i.e.*, one wife between several husbands.
4. That blood relationship to the mother first became recognised, and hence arose a system of kinship through females only.
5. That the constant state of war between group and group necessitated the capture of wives from foreign groups.
6. That in course of time this system of kinship through females and exogamous marriages would produce heterogeneous groups, each group containing within itself members of several other groups (the children of the women of such other groups).
7. That these heterogeneous groups would therefore contain within themselves all the conditions of exogamous marriages, and that hence members of the same *local* group, being of different kinship, could marry.
8. That from these conditions of early society would arise a recognition of paternity, and hence a system of kinship through males as well as females.

Now it is clear that to make the various stages of this theory perfectly consistent one with another, we ought to know something about the conditions which formed the human horde from which was developed all the subsequent phenomena of early human society. Mr. McLennan has arrived at his first stage by the exhaustive examination of the evidence which proves his later stages, and he practically postulates that granting his general conclusions the human horde must have been the earliest stage of man's existence. To Mr. McLennan himself we may perhaps be inclined to admit his full right to so deal with the subject; but it is, at all events, a matter which deserves some degree of independent treatment, and it is in this light that I propose to deal with it. My question is, Is there any evidence, other than that based upon simple argument, of the earliest stage of human society, the primitive horde ?

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In the first place we will turn to the biological evidence. At the outset it is important to note that the great authority of Mr. Darwin cannot be claimed so completely on the side of the origin of society in the parental group as Sir Henry Maine would seem to imply. He quotes from Mr. Darwin ("Descent of Man," I, 362), a passage from which I will only re-quote one sentence, "in primeval times men . . . . would probably have lived as polygamists or temporarily as monogamists." But Mr. Darwin has another passage ("Descent of Man," I, 84) which directly opposes the theory of original parental groups. "Some authors," he says, "suppose that man primevally lived in single families; but at the present day though single families, or only two or three together, roam the solitude of some savage lands, they are always, as far as I can discover, friendly with other families inhabiting the same district." It is this complex group then, from which the history of man has to start. But there are other points insisted upon by Sir Henry Maine, and these are, rightly enough, those where Darwin, summarising his evidence as to man's primeval condition, asserts that "their intercourse, judging from analogy, would not then have been promiscuous," and they "would not at that period have partially lost one of the strongest of all instincts common to all the lower animals, namely, the love of their young offspring" (II, 367). These results from the biological evidence are brought to bear against Mr. McLennan's conception of the characteristics of the horde, and they must form the starting point for our researches.

Mr. McLennan has used certain expressions in his description of the condition of early man which have proved to be not only the centre point of attack by those who oppose his general theory, but which have entirely diverted attention from much more important conclusions resulting from the theory. The chief of these expressions is that of "utter promiscuity" as a description of the marital conditions of early man. Now of "utter promiscuity" there is no evidence from the types of savage society now extant. The nearest we get to it is "temporary monandry," as Mr. Darwin terms it, which consists of the choice by a woman of a husband, who is husband just so long as offspring is begotten and requires protection. That the period during which man, woman, and child kept together was in the earliest natural development of human life of much longer duration than modern civilisation allows to be necessary is asserted by Mr. Fiske and allowed by Mr. Herbert Spencer.[1] "Children not so soon capable of providing for themselves had to be longer nurtured by female parents, to some extent aided

[1] "Principles of Sociology," i, pp. 56, 680.

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by male parents." But as soon as offspring were capable of taking care of themselves the parental tie was snapped. The children would certainly go their own ways—the male to become in his turn a hunter and fisher, more or less connected with his fellow man, the female to become the partner of her accepted lover. It is impossible to conceive parental affection extending beyond the period when such steps were taken, and the evidence of later marital relationships makes it impossible to conceive that the union of the parents would continue.[1]

But just as there is no excuse for calling this system of temporary monandry by such a historical term as family, so there is no excuse for using the term "utter promiscuity." There is no reason again to suppose that "paternity" was uncertain and, was, therefore, incapable of being recognised. Both paternity and maternity were certain, and they were fully recognised. Where the break occurs between this primordial system and the later system is that the recognition was simply one caused by natural instincts, and that it was temporary in its duration and quickly became lost. In short, the relationship between the sexes was a *natural* and not a *political* relationship. Because primordial men did not, throughout life, recognise a bond of affection for offspring, and did not use the potent fact of kinship to constitute a social unit, it does not follow that they did not know of the paternal and maternal instincts, were not influenced by sexual jealousy, and did not know of the connection between parent and child. All that can be said of them is that they did not use these several natural facts to produce artificial, or, as it is best to say, political combinations. Biology therefore teaches us this: that our primordial ancestors roamed the earth, possessing all the natural instincts, but without the capacity of using these instincts for any political purpose. There is a vast difference between the absolute non-recognition of the ties of parental kinship, and the non-use of them for the purpose of generating a new departure in the ways of man, and in this difference will be found all that is to be said against Mr. McLennan's terminology. If we can only thoroughly grasp the fact that the ties of kinship, whether male or female, are in every sense *artificial* conceptions, and that consequently their introduction must have been preceded by a long period of *natural* combinations of human beings, we gain the first important step in the history of the primitive human horde.[2]

[1] Many examples exist in savage society where the parents separate after the birth of a child.

[2] Mr. McLennan says "the development of the idea of blood relationship into a system of kinship must have been a work of time."—"Studies in Ancient History," p. 84.

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Before the ties of kinship could have formed societies, children must have habitually stopped with parents, grandchildren with grandparents, cousins with their kindred. How recent in the history of man such artificial associations were made cannot, of course, be ascertained, but I shall have something to say upon this point later on. In the meantime, the fact to notice is that the primitive human horde was kept together by quite other influences than kinship, and our next step must be to enquire what these influences were.

Mr. McLennan has only hit upon a portion of the true solution. In a passage which contains a curious mixture of terminology, but which evidently refers to "the earliest human groups [which] can have had no idea of kinship," he observes that the "fellowship between the members of such a group would be that they and theirs had always been companions in war or the chase—joint-tenants of the same cave or grove."[1] Companionship in danger, and food-winning, and contiguity of occupation are here indicated as the ties of association. Mr. Lang introduces us to one other probable explanation of the ties that held the horde together. Noting that totemism "arose at a period when ideas of kinship scarcely existed at all," he goes on to remark that "above all the very nature of totemism shows that it took its present shape at a time when men, animals, and plants were conceived of as physically akin."[2] This is a very important factor in the early life of man. Clearly if the first-formed groups of man were based upon a totem-organisation and not a blood tie; if totemism includes a common worship of some object of nature; and if such worship is produced by an incapacity in man's early conceptions to separate his own being from animals, plants, and other nature objects around him—clearly we must look for evidence as to the earliest social organisation to such of the forces of nature as might have determined the range of contiguity of occupation, or the means of establishing common interests.

Before adducing any evidence as to man's early associations with nature, it seems worth while to enquire whether in the lower organisations there is any evidence as to forces which produce groups other than those founded upon the ties of blood. For this purpose I will make one quotation from Darwin, which exactly explains the initial facts which I am anxious to accentuate. Mr. Darwin says "Most animals and plants keep to their proper homes and do not needlessly wander about. We see this with migratory birds, which almost always return to the same spot. Consequently each newly formed variety would

[1] "Studies in Ancient History," p. 84.
[2] "Custom and Myth," p. 262.

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generally be at first *local*, as seems to be the common rule with varieties in a state of nature; so that similarly modified individuals would soon exist in a small body together, and would often breed together. If the new variety were successful in its battle for life it would slowly spread from a central district, competing with and conquering the unchanged individuals on the margin of an ever-increasing circle."[1] How clearly this explanation meets the phenomena to be met with in man's earliest stages will, I think, be shown as we proceed.

It is neither necessary nor expedient to examine now any considerable mass of evidence relative to man's attitude towards the great powers of nature. The subject has not yet been approached with due regard to its importance as one of the determining features of man's earliest ways of life;[2] but there is sufficient accumulated evidence for us to be able to give some typical instances of the forces that kept the primitive human hordes together.

When in the mid-pleistocene age of geology we find that man has made his way into Europe as far west and north as Britain, we find him in the presence of abundance of food, but with difficulty guarding himself against the wild animals. Innumerable horses, large herds of stags, uri, and bison were to be seen in the open country; three kinds of rhinoceros, and two kinds of elephant lived in the forest; the hippopotamus haunted the banks of the rivers, as well as the beaver, the water-rat, and the otter; there were wolves also, and foxes, brown bears and grizzly bears, wild cats, and lions of enormous size; wild boars lived in the thickets; and as night came on the hyænas assembled in packs to hunt down the young, the wounded, and infirm.[3] Not daring to penetrate into the vast forests that stretched themselves around him, but keeping to the river courses man thus progressed from point to point over the earth's surface, absolutely bound by the conditions of his life to subordinate himself to the external forces which kept him confined to very restricted areas for his wanderings. The narrowing down of the territorial lines of progress narrowed down too the forms of the social grouping; and an examination of the geologic evidence confirms the view that as there was no necessity for, so there could have been no thought of, artificially formed societies. The successive waves of migrationists were bound together by the

[1] "Descent of Man."

[2] Mr. Spencer, "Principles of Sociology," cap. iii, "Original External Factors," brings clearly together the chief heads of this subject, and concludes (p. 39) "that the earlier stages of social evolution are far more dependent on local conditions than the later stages." But it is singular how little this important conclusion is brought to bear upon Mr. Spencer's subsequent researches.

[3] Boyd Dawkins' "Early Man in Britain," p. 137.

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accumulated and accumulating fears of the dangers that surrounded them.

Such fears found their ultimate expression in a system of nature worship, which even now forms a large portion of the creeds of savage people. The Aka of Assam, we are told by Dr. Hunter, "fears the high mountains which tower aloft over his dwelling; he fears the roaring torrents of the deep glen; and he fears the dense and dark jungle, in which his cattle lose their way; these dark and threatening powers of nature he invests with supernatural attributes; they are his gods."[1] This forcible example is but an instance of what is met with all over the world. Among all the hill tribes of India the mountains are the abode of demons. Among the Khumis, each peak in the native hills is held to be the watch-tower of a god.[2] A hill in Rambon Island is supposed to be the abode of evil spirits.[3] Nothing but positive orders and accompaniment by us would, we are told, induce the Mugs to trespass on many of the hill tops, which were inhabited, they said, by demons.[4] The Nicobar islanders have a good and evil spirit, the latter resides in the woody interior of the island.[5] The extensive forests untrodden by human foot, are believed by the Coorgs to be reserved for the abodes of deified heroic ancestors.[6] And so it is all over the world.[7] Hemmed in and confronted on all sides by such enemies, the primitive human horde was kept together by outside forces, not by internal arrangements. As man spread over the earth, treading the river paths for the first time, skirting the fearful forests, and looking upon the distant hills with something more than awe and wonder, fighting his way before his fellow animals in the struggle for existence, there is ample room for the conception of a vast period of time for the existence of the horde—a period which even Plato contemplated when he measured the difference between the social forms of the Cyclopes and those of the Greeks of his day.

That man's experiences during this long period of time have materially affected his later life there cannot be any doubt. Many conceptions which originated with the horde have sur-

[1] "Statistical Account of Assam," i, 356.
[2] "Journal As. Soc. Bengal," xv, 63.
[3] *Ibid.*, iv, 83.
[4] *Ibid.*, x, 430.
[5] "Journ. Anthrop. Inst.," iii, 4.
[6] Richter's "Manual of Coorg," 166.
[7] I would refer particularly to Mr. McLennan's articles in the "Fortnightly Review" vols. xii and xiii, on "Tree and Animal Worship," and to the "Journal of the Ethnological Society," new series, vol. i, pp. 23, *et seq.*, for a summary of the evidence. Mr. Walhouse's "Ragbushes and Kindred Observances," "Journ. Anthrop. Inst.," vol. ix, pp. 97–106, should also be consulted.

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vived after the formation of kindreds. All that large system of nature worship, which dictated to the primitive settlers in villages that the clearings in the forest could not be made till the tree deities had been compensated,[1] which taught that the earth spirit must be propitiated at the founding of a new village, and that the earth demons fought against the growth of corn or other agricultural produce,[2] originated when man had not progressed beyond the stage of the primitive horde; and only at last gave way when man's conception of the bonds of kinship had developed into a worship of ancestral spirits. Again, it has already been observed that the conception of totemism originated in the horde, and yet lasted down very late when tribes had been formed upon the basis of kinship. The strength of these survivals of portions of the organisation of the primitive horde, may well lead us on to enquire whether there may not be any survivals of the horde itself, or at all events of groups of human beings so little advanced along the line of development formed by kinship as to show us a near type of what the primitive horde must have been.

Whatever may have been the district in which man was first evolved from his ape-like progenitors there is considerable evidence to prove that Central Asia is the district from which successive migrations have flowed. It may be taken for granted, I venture to suggest, that the effects of migrations must have been enormous in modifying the social conditions of the primitive hordes; and that hence the nearer the centre of the original home the more likely are we to meet with types nearer to the original condition. But whether it be admissible or not to advance these arguments drawn from the natural history of man as in any way accountable for facts in his social history, it is certainly not unimportant to note that the regions of Central Asia do supply us with types of human hordes the most nearly coincident to what Mr. McLennan has prepared us to expect from the evidence he has adduced as to the origin of the later forms of society based upon kinship. Leaving for other consideration such types of roaming groups, not to be identified with kinship-formed groups, as may be found in the Wood Veddahs, who roam about in pairs; the Bushmen, who wander in small isolated families; the Fuegians in clusters of a dozen or so,[3] we will, as a working hypothesis, confine our immediate attention to the Central Asian evidence.

[1] See a conspicuous example of the superstitions of the woodcutters in Hunter's "Statistical Account of Bengal," i, 312.

[2] I have collected some examples of this in my "Folklore Relics of Early Village Life," cap. vi.

[3] Spencer's "Principles of Sociology," i 482.

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The hill tribes of India afford the most singular specimen of the primitive horde, both in respect of the external forces which keep it together, and of the internal organisation which regulates the conduct of individuals to one another. This specimen is the Abor tribe of the Assam Hills. Of the external forces which alone form the means of keeping the horde together we have the following evidence: The religion of the Abors consists of a belief in those sylvan deities to each of whom some particular department in the destiny of man is assigned. A mountain called Rigam is the favourite abode of the spirits and is held in great awe, no one being able to return from its summit. Losses of children are attributed to the spirits of the woods, and retaliation is made by cutting down trees till the loss is made good.[1] Clearly with such beliefs in the surrounding nature gods there is little room, as there is scarcely any need, for the development of a social system based upon any other observable phenomena than the greatest one of all, namely, locality. Pressed on all sides by the fear of mountain deities and tree deities the outcoming life from such a set of conditions must depend almost entirely upon local not personal influences. And such we find to be actually the case.

It is a pity that minute examination of the social system of the Abors has not been made. One thing it is very important to obtain information about, namely, the existence of totemism. If the Abors are a typical example of the primitive horde they would be constituted upon a totem system, or would have the germs of the totem system within their group. Their worship of nature and their special worship of tree deities would lead us to expect some traces of totemism. But no traveller amongst them has recorded any such traces. It is, however, important to note than Mr. McLennan has found sufficient general evidence to be able to state that "the totem stage appears to have been passed through by numerous tribes of Central Asia";[2] and one of these tribes I have been able to discover is a near neighbour to the Abors. Of the Khasias, Dr. Hunter says "there is no caste system, but each clan is called after some object of nature, as the *oak* clan, the *crab* clan, &c., and these names entail certain restrictions beyond which intermarriage is forbidden."[3]

Leaving this evidence for what it is worth, and I would suggest it is worth further enquiry, we have yet to note one definite fact about the Abors which goes far to establish the theory that they represent a type of the primitive horde. Though externally they make up one group—a human horde that is—inter-

[1] Hunter's "Statistical Account of Assam," i, 337.
[2] "Fortnightly Review," 1869, xii, 418.
[3] "Statistical Account of Assam," ii, 218.

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nally there are no traces of the cohesion resulting from the ties of recognised kinship. We are told that "the Abors, as they themselves say, are like tigers—two cannot dwell in one den; and their houses are scattered singly or in groups of two and three over the immense extent of mountainous country occupied by them. The Meris say that whenever a few families of Abors have united into a society, fierce feuds about women and summary vengeance, or the dread of it, soon breaks up or scatters the community."[1] In the unpleasant details of the internal condition of the Abor people we meet with Mr. Darwin's example of temporary monandrous groups in *local* contact with each other, the whole forming, as I would submit, a type of the primitive human horde. The entire absence of the ties of kinship prevents the growth of family power within the horde, while the connection between the various sections is shown by the marriage intercourse of their members. Kept together by outside forces, possessing no doubt some forms of the totem system, which is a binding power between the units not depending upon blood ties, and being entirely free from the ties of kinship, these Abor people present a very good example of the horde stage of human society.

If we extend our observations from this Abor type of the primitive horde to any parallel types we are at once reminded of the famous example of the Cyclopes. Sir Henry Maine, equally with Plato and Aristotle, adduce the Cyclopes as evidence of the parental origin of human society. The passage in the "Odyssey" is thus rendered by Mr. Lang: "and we come to the land of the Cyclopes, a forward and a lawless folk, who plant not aught with their hands, neither plough. These have neither gatherings for council nor oracles of law, but they dwell in hollow caves on the crest of high hills, and each one utters the law to his children and his wives, and they reck not one of another." But in confining attention to this one passage only it has been overlooked that the groups of men, women, and children thus described were bound together by some sort of common tie. Thus Polyphemus in his agony calls for assistance "on the Cyclopes who dwelt about him in the caves along the windy heights." This tie we know was not one of recognised kinship for "they reck not one of another;" and it must have been the common dangers, the common fears of the surrounding nature spirits, in short, all the recognisable forces which formed the primitive human horde, and which we have found existing

[1] "Asiatic Society of Bengal," xiv, 426–428; Hunter, "Stat. Account of Assam," i, 351. It is asserted by Dalton that the Abors and the Meris are of the same race. But Dr. Hunter pointedly states the many objections to this theory arising from the difference of customs, religion, &c., *ibid.*, p. 333.

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among the Abors. If we wanted a short summary of the social condition of the Abor people Homer's language about the Cyclopes would in every way answer the purpose; and conversely, it appears to me that a more elaborate description of the Cyclopes is to be obtained from what is known of the Abors. Clearly such an exchange of definitions indicates a social parallel of remarkable closeness.

The close parallel which thus clearly exists between the Abors and the Cyclopes as types of a social stage in man's history is of great importance in a scientific sense. Both geographically and chronologically they are discontinuous; and discontinuity, to use Mr. Wallace's term, of two identical types, argues great antiquity for the type. There are nearly 4,000 miles of territory and nearly 3,000 years of history separating the two peoples. The safe conclusion to draw from these two important factors in the case, is that both Abors and Cyclopes belong to an epoch in human history which witnessed the continuous population of this long stretch of territory by groups of the Abor and Cyclop type.[1] It may be impossible to prove that this epoch may be identified with an epoch drawn from the records of other sciences; but if the theory which has been advanced is worth anything, it ought to stand the test of comparison with the established facts of geology.

These types of the primitive human horde, as also the conception of it suggested to Mr. McLennan by his researches into the earliest developments from it, enable us safely to draw one conclusion, namely, that unorganised itself, or at all events very loosely put together, it was not capable of meeting any strongly organised opposition from powerful enemies. Such is the decisive evidence of the Abor type; the Cyclopes declined to go to the assistance of their injured comrade; and of one parallel type which I have noted from Africa, the Mashona tribe of the Transvaal District, it is stated that "they live by families [groups] on separate hills, and though they intermarry, they

[1] Another example of such a group may be adduced from the remarkable tradition of the Northern Kuris preserved in the Sanscrit texts, translated by Mr. Muir, see Part II, p. 336. It is quoted by Mr. McLennan in his "Studies in Ancient History," p. 119. And to show that the Abors are but a type of the general aboriginal Indian group I would quote Sir Alfred Lyall's very suggestive description of the Bheels. They are "all sub-divided into a variety of distinct groups, most of them apparently muddled together by simple contiguity of habitation or the natural banding together of the number necessary for maintaining and defending themselves."—"Asiatic Studies," p. 160. And he goes on to say that "we might make out roughly, in central India, a graduated social scale, *starting from the simple aboriginal horde at the bottom* and culminating with the pure Aryan clan at the top; nor would it be difficult to show that all these classes are really connected and have something of a common origin." This passage is a remarkable confirmation of the conclusions I had arrived at before I saw it.

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keep up perpetual feuds; it would be most difficult to fuse this mass into a united nation [group]; their very division into units must ever prevent their holding their own against any organised power."[1] Now the only organised opposition which the primitive horde could have met would have arisen from hostile hordes of man; and geology clearly establishes that such an opposition was obviated by the immense area over which the earliest races of man spread. It is quite impossible to read the evidence as to the records of the earlier stone-age man, which Mr. Worsaae has supplied in his "Pre-History of the North," without being struck by the fact that a constant spreading out over the unoccupied lands always met the pressure of population. And it is curious to compare with this Mr. Boyd Dawkins' description of the earliest races of Britain. Whether by accident or design, whether a strict deduction from geologic evidence or not, Mr. Boyd Dawkins makes the difference between the man of mid-pleistocene age and later comers to be that the former were hunters and fishers without social organisation, while the latter appear in tribes. It may be premature to assume that the geologic evidence so nearly meets the anthropological as to assert that early stone-age man spread over the earth in hordes uninfluenced by the ties of kinship; but it becomes an admissible suggestion that the two branches of scientific evidence thus brought face to face may conjointly yield the conclusion which has been first deduced from other data.

There is yet one other argument to consider before concluding our enquiry. Granting that the first spread of man might have been by hordes, uninfluenced by the ties of kinship, successive waves of migrations, bringing with them the necessary conquest of the descendants of previous ages of migrationists, must have been bound together by closer ties than those that bound the horde. As already we have laid stress upon the fact that, as there was no necessity for, so there was no thought of, a closely knit, artificial society during the earliest periods of man's migrations, it is correlatively necessary to lay stress upon the fact that when later waves of migration spread their way over the earth, there then arose a necessity for artifically formed society. Man had then to meet man in conflict. To successfully overcome the unorganised hordes of hunters and fishers, the formation of which we have just been examining, organised bodies must have been formed. Everything in geologic evidence tends to confirm this proposition. There is nothing in the records of the earlier stone-age people, representatives, that is, of the

[1] "Further Correspondence Relating to the Transvaal" (House of Commons), c. 4646 of 1886, p. 118.

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primitive human horde, to tell of any development, even after long ages of settlement, in the social forms. But in the later stone-age people, representatives, that is, of the first wave of conquering tribes, there is much to tell of a development in the social forms. Possessing new and improved weapons, which became the object of barter, accompanied by whole trains of domestic animals, oxen, sheep, swine, and horses, penetrating into the forests, which had only as yet been skirted, the later stone-age people must have been organised upon some tribal basis unknown to the earlier hordes. That this basis was one of kinship, is the conclusion to be drawn rather from anthropological than geological evidence; but the latter goes far towards proving such a conclusion from its own records, when it is considered that now, for the first time, the dead are carefully buried, indicating that the ties of kinship had already influenced human thought.

It would appear then, that the first ages of migration witnessed too the formation of tribal organisations based upon the ties of kinship. Such tribal organisations, according to the researches of Mr. McLennan, had, for their distinctive features, the reckoning of kinship through females, and the practice of polyandry. Explanations have been offered as to the origin of female kinship and of polyandry, but neither the uncertainty of paternity in the first case, nor the practice of female infanticide in the second case, can be said to be sufficient for all the facts. Already we have noted the objections to the theory of uncertainty of paternity, and great authorities have declared against the theory of female infanticide.[1] If, then, the conditions of the primitive human horde, both in its normal state and at the time when it met its first human enemy, answer in any degree to the descriptions which my arguments allow us to formulate, they ought, also, to give some clue to the origin of the two principal phenomena which Mr. McLennan has adduced as belonging to man's earliest development from the horde, namely, polyandry and kinship through females. The horde possessed, or had developed, the principles of totemism and exogamy. To these, at the time of the great migrations, were super-added the principles of polyandry and kinship through females, and the point we have to consider is: Do these later developments show anything of cause and effect? are the facts of migration sufficient to bring about the development of tribal society based upon polyandry and kinship through females?

Sir Henry Maine has already suggested that the scarcity of

[1] *See* Fison and Howit's "Kamilaroi and Kurnai," p. 174; Sir Henry Maine's "Early Law and Custom," p. 212.

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women, and consequently polyandry, might be due to the wanderings of our race;[1] but the examples he quotes are all historical, and are hence limited and isolated in extent. No limited or isolated practice can, however, account for a phenomena in human history which is claimed to be one of the stages through which mankind must have passed on its way to civilisation, and Sir Henry Maine is not slow to point out this very material objection. But pre-historic migrations were neither limited nor isolated.[2] They covered almost all the lands to which the earlier stone-age people, the primitive hordes, had penetrated. It is quite conceivable that the earliest adventurers would seek to be accompanied by some women, and it is equally conceivable that the number of male adventurers would greatly exceed the female. Historical migrations have ever been so, and so must pre-historical migrations have been. Such an initial inequality between the sexes would probably become intensified as the dangers of the migrations increased, and hence would arise the rude system of polyandry. Compelled thus to acknowledge ties which had previously not been so prominently thrust forward, the new migrationists would soon perceive that the fact of kinship was of enormous importance in keeping their own race distinct and clear from the people they were conquering or enslaving.[3] The war was not now one between man and nature only; but between man and man. The fight was harder, and the organisation of the conquerors must have been closer, and it was formed upon the conception that there could be no affinity between the new coming conquerors, and the scattered hunting and fishing people—a conception that could only become of supreme importance if the ties of observable kinship were gathered up and utilised for political organisation. Thus would originate kinship groups, as opposed to local groups; and thus polyandry and descent through the female would be the first distinguishing marks of the earliest kindreds.

Although I do not lay claim to the idea that such a hypothesis, as I have here ventured to formulate, can be absolutely proved by the only science which is capable of affording such proof, namely, anthropology, yet I suggest that it is worth while putting it forward for consideration. In the first place it affords, so far as it is at all tenable, a conception of the earliest form of human society which entirely fits in with the

[1] "Early Law and Custom," p. 212.

[2] Geological changes and meteorological changes as well as the consequent changes of flora and fauna must have been causing over all parts of the earth perpetual emigrations and immigrations.—Spencer's "Principles of Sociology," i, p. 18.

[3] *Cf.* Worsaae's "Pre-History of the North," p. 26.

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theory of one important authority—Mr. McLennan—on the later developments of society. In the second place no one has yet supplied the necessary groundwork upon which such an enquiry may be based. So far, then, as my researches are in accord with Mr. McLennan, and so far as they fill up a gap in anthropological science, I venture to hope that they may be of service as a working hypothesis for future research.

Discussion.

The President thought that the author had done good service in bringing to notice a definite stage in the theoretical course of human evolution, which had as yet received no generally accepted name. It was the stage, as the author had shown, before any recognised system of kinship existed, and before there were any political bonds, but one in which people were aggregated solely under the compression of external influences. He had, however, some doubt whether the stage in question was aptly enough expressed by the word that the author desired to use for it. "Horde" is a term of Asiatic origin, still and always used to express aggregations of men living under very different social conditions to those just supposed. It is true that in colloquial English the word horde is often used in a vague sense, and this he suspected to be due to some confusing similarity in sound between it and the word herd, which he need hardly say was of entirely different origin and meaning. Neither did he wish to convey the slightest intimation that the author had himself unintentionally confounded the two. Still, it seemed to him that the word *herd*, though not free from objection, was more appropriate to the social stage that the author desired to express, than the word horde.

The Author in reply to the President said that the reason why he had chosen the word horde was because Mr. McLennan had already used it. Moreover, it had not come to have any very great political meaning yet, and in time the scientific meaning which was now sought to obtain for it would in the end overshadow what little political meaning was attached to it in connection with the Huns of Attila, and other famous "hordes" of men. The term "herd" was already usefully and definitely used for animals, though there was nothing in its signification which would not suit the definition he sought to give to the period of human life which it might represent. As to the examples he had given of the primitive human horde, he by no means suggested that they were absolutely types of this far-off period of human history; all that he suggested was that they gave us the nearest parallel to what the primitive human horde must have been, although they might have reached their modern form by degradation from higher civilisation, for degraded types of humanity probably retraced some of their former steps of progress.

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A Note on the Dieyere Tribe of South Australia by Mr. Samuel Gason, communicated by Mr. J. G. Frazer, was read by the Secretary. This is printed in the Miscellanea at the end of the present number of the Journal.

JUNE 14TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of Sir WALTER BULLER, K.C.M.G., F.R.S., of 52, Stanhope Gardens, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the UNITED STATES GEOLOGICAL SURVEY.—Dinocerata, a Monograph of an Extinct Order of Gigantic Mammals. By Othniel Charles Marsh.

From the ASSOCIATION.—Report of the Fifty-sixth Meeting of British Association for the Advancement of Science; held at Birmingham, in September, 1886.

From the SOCIETY.—Proceedings of the Royal Society. No. 254.

—— Proceedings of the Royal Geographical Society. 1887. June.

—— Papers and Proceedings of the Royal Society of Tasmania for 1886.

—— Journal of the Society of Arts. Nos. 1801–1803.

—— Boletim da Sociedade de Geographia de Lisboa. 6ª Serie. Nos. 9, 10 e 11.

—— Bulletin de la Société d'Anthropologie de Lyon. Tom. v. 1886.

From the SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine, Vol. III, No. 6.

From the EDITOR.—Nature, Nos. 917–919.

—— Science, Nos. 224, 225.

—— The Photographic Times, Nos. 296–298.

The EARL of DUCIE, F.R.S., exhibited three perforated stones from Scotland, known locally as "Mare-Stanes," and the following note on the subject was read by the Secretary:—

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EXHIBITION *of* THREE "MARE-STANES," *or* "HAG-STONES."

By the EARL of DUCIE.

THE following is an account of three "Mare-stanes," *Anglicè* Hag-stones, received by Lord Ducie, from Marykirk, Kincardineshire, N.B., May, 1887.

One of the stones has two human teeth inserted and fixed in the natural holes in the stone. It was known to have been 70 years in one house, and was given to Mr. A., of Marykirk, by an old lady. She had used it to ward off bad dreams.

The other two are thus described by the person who procured them: "Mare-stanes were very common thirty years ago in this district (Marykirk), and many are used yet, but those who are in possession of them do not like to own it. They are still common in the fishing villages along our coast.

"The old grandfather of Mrs. N. sometimes comes to Marykirk on a visit, brings his Mare-stane in his pouch, and hangs it in his bed. He comes from Stonehaven, and is an old fisherman.

"Sandy M's. wife, while she stayed at B., always kept the Mare-stane in the bed; and a Mrs. G., of Edinburgh, a lady who came to B. many years, always liked that stone in her bed.

"Old Susan S. assures me that when the females of a house had all the work, and were 'stinted' to do a given amount of work at the spinning wheel before they got any supper, and so much before they went to bed, they were very liable to take the 'Mare' (*i.e.* nightmare) owing to anxiety connected with their stints, and the 'Stane' was a regular preventive. Married ladies, she says, when in an interesting condition, were very particular in having the Mare-stane in the proper place, and she has known 'Stanes' hung in byres, behind cows expected to calve, to ensure safety.

"How it is that the natural worn hole gives this charm, I cannot tell.

"I am assured that there are not a few in our village besides these, but one does not care to hunt for these sacred relics. We are not a superstitious people, but somehow a veneration and reverence is set on any thing or custom which our mother or grandmother had or did."

Dr. John Evans, F.R.S., writing to Lord Ducie on the subject gave the following references:—Brand's "Popular Antiquities," by Ellis, 1849, vol. iii, 279–280, in referring to nightmare, quotes thus from Aubrey's "Miscellanies," p. 147:—"To hinder the nightmare, they [people in the north of England] hang in a

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string a flint with a hole in it (naturally) by the manger; but, best of all they say, hang about their necks, and a flint will not do it that hath not a hole in it. It is to prevent the nightmare, viz., the hag, from riding their horses, who will sometimes sweat at night, the flint thus hung does hinder it." He adds, "Grose says, a stone with a hole in it, hung at the bed's head, will prevent the nightmare; it is therefore called a hag-stone from that disorder, which is occasioned by a hag or witch sitting on the stomach of the party afflicted. It also prevents witches riding horses; for which purpose it is often tied to a stable key."

In "Notes and Queries," series vi, vol. 1, p. 54, is given an abstract from an old book printed in Queen Elizabeth's time, headed "Of the Nightmare," describing a "fonde foolishe charme" as follows: "Take a Flynt Stone that hath a hole of hys owne kinde, and hang it ouer hym . . ." to which the written charm, as there related, is to be attached.

Discussion.

Dr. Evans observed that it was the first time that he had heard of the use of human teeth in connection with "hag-stones" or "witch-stones." It seemed possible to account for the idea that horses were ridden during the night by witches, from the animals, when ill, being found in a state of sweat in the morning, for which such exercise might seem to account. But in what manner a stone with a hole in it sufficed to exclude witches, or how the nightmare was transferred to the human being, involved more difficult questions. The great prevalence of the use of the hag-stones in the district of Marykirk was remarkable. The use of "lucky-stones" was common, and he had cited intances in his "Stone Implements." The use of a hollow stone to hang up in our stables to prevent the Ephialtes, or nightmare, is mentioned by Sir Thomas Browne.—"Vulgar Errors," Bk. v, ch. xxii, sec. 7.

Mr. Rudler remarked that the three stones exhibited varied much in mineralogical characters. One was a water-worn fragment of limestone, drilled by a boring mollusc; another was a piece of quartz, probably from the crystalline schists of the east of Scotland, containing a greenish chloritic mineral, the natural removal of which seemed to have formed the holes in the stone; while the third was a jaspery pebble, probably derived from a conglomerate in the Old Red Sandstone.

A perforated stone is sometimes known in the north of England as a *Hog-stone*, and in Harland and Wilkinson's "Lancashire Folk-Lore" (p. 154), it is said that a hog-stone, or stone with a hole in it, is tied to the stable-key, in Lancashire, to protect horses, or is hung at the head of the bed to protect the farmer and his family.

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In the south of England, it is not uncommon to find flints with natural perforations, and these are commonly regarded by children as "lucky-stones." In Butler's "Hudibras," we read of a sorcerer who could—

> "Chase evil spirits away by dint,
> Of sickle, horse-shoe, and *hollow flint.*"

The following paper was read by the author:—

HITTITE ETHNOLOGY.

By Captain C. R. CONDER, R.E.

THE President having done me the honour to ask me to read a paper about the Hittites, I have here sought to show the general considerations which appear to guide us to a right understanding of their race, religion, language, and customs. It is a question in which I have been interested now for seven years, and I hope that I have not failed to read every work of importance that has been written on the subject.

I propose to assume that the Kheta known to the Egyptians, the Khatti conquered by the Assyrians, and the sons of Heth mentioned in the Bible are the same people. This has been disputed, but since it is held to be the case by Prof. Sayce, Dr. Taylor, and M. Perrot, and was, I believe, recognised by Lenormant, and since these writers have given their reasons for such a conclusion, it appears to be sufficiently recognised to be certain of final acceptation.

The study of any people of antiquity rests, according to Max Müller, on a knowledge of physical appearance, language, and religion. A race may lose to a certain extent its characteristic type through difference of climate, of food, or of habit, or through admixture of foreign blood. It may adopt a new foreign religion; it may forget its original language; but if we can find it preserving a type, a religion, and a language which all belong to one original pure stock, we are then able to recognise the relation of the stock to others of the same human family.

It might at one time have appeared incredible that we should ever know anything of the Canaanite tribes which preceded Israel in Palestine, and which were almost exterminated in the south at the time of the Hebrew conquest; but it was quite as unexpected in the last century that we should ever recover Sennacherib's account of the siege of Jerusalem, or know the history of Nebuchadnezzar from official records. Since we have

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in Egypt pictures which are known to represent Hittite kings and warriors, and statues of the gods with hieroglyphic texts discovered in the Hittite country, it is clear that it is no mere theory with which we have to deal, but with records as real and as important as those whereby the Egyptians, the Akkadians, the Medes, the Babylonians, Assyrians, Etruscans, Persians, Greeks, and Phœnicians are already more or less well known to us all.

And first as regards race, it is a well known fact that the ancient sculptors of Asia and of Egypt carefully distinguished the various peculiarities of race in their pictures. In Egypt side by side with the various Egyptian types we find the black negro, the hook-nosed Semitic people, and the yellow peoples of the north represented. The Phœnician with shaven upper lip and long beard, the brown ancestor of the Arabs, are clearly distinguishable from other types; and at Tell Loh, by quite recent discoveries, a dark race, with fine features recalling the Abyssinian, has lately been brought to light, which is no doubt the same "dark people" mentioned in one of the oldest cuneiform records. I understand that the question of obtaining good reproductions of these various types is already under consideration, and no doubt interesting papers on this subject may be shortly expected; but in the meanwhile I may say that the differences of type are already so well known and are so marked that we have sufficient evidence in the pictures of Rosellini, Sir Gardner Wilkinson, Brugsch, and others to enable us to draw very definite conclusions.

On the walls of the great temple of Karnak the Hittites of Kadesh are represented warring against Rameses II. Two races have combined their forces and are easily distinguished in these pictures. The one is a dark or brown race, bearded, and resembling the ordinary Semitic type. This no doubt is the population which accounts for the Semitic nomenclature of Palestine before the Hebrew conquest, which is to be recovered in the long list of towns conquered by Thothmes III in Palestine. Kadesh, the great city where the battle against Rameses II was fought had itself a Semitic name, and no fact is better established than the existence in Palestine as early as 1600 B.C. of a people speaking a language akin to Hebrew.

But side by side with this population, the ruling class as represented in the chariots which are rushing towards the Egyptian army, or fleeing before the Pharaoh, there are warriors and drivers of another type. They have a lighter complexion. They have black hair and eyes, but no beards. Their moustaches are long and their heads are more or less shaven, and they have real pigtails like the Chinese. I well remember Dr. Birch five years ago in the British Museum bringing out for me the plates in Rosellini and saying, "Look at the Hittites, are they not just

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like Mongols or Chinese?" It was then a new idea to me, but if we reflect on the relations of race still notable in travelling through Palestine and Northern Syria, it seems to me that we perhaps begin to understand Hebrew history better. The war against the Canaanites may have been only part of the constantly recurring struggle still going on in Syria between the Semitic and the Turanian peoples; the race hatred between Israel and Canaan becomes identified with that antipathy which has always existed between these two peoples, who nevertheless have lived together since the dawn of history and have mutually influenced and civilised one another.

The evidence of physiognomy seemed, I would submit, sufficient ground for an inquiry into the relationship which the Hittites, if a Turanian people, must have borne to other Turanian populations in the west of Asia. Now in studying such a subject it is absolutely necessary to begin by accepting what has been laid down by competent authority. I do not claim to have any opinion as to the true home of the Turanian race, or as to the relationships between north and south Turanian languages. Max Müller enumerates more than 100 such languages spoken in Asia, of which more than half are grouped as South Turanian, including the Indian, Malay, and Himalaic groups. He regards this great number of tongues which (as compared with eight Semitic and some forty Aryan tongues) represent a large majority of Asiatic languages as being all more or less remotely linked to that most archaic form of Asiatic speech—the oldest Chinese. According to the generally received theory the majority of North Turanian tongues are grouped together as Ugro-Altaic, on the supposition that the home of the race was in the Altai Mountains north-west of China, and that the Turanians of Western Asia migrated thence. The Finnic tribes, among whom are reckoned four great families, are those which seem to have penetrated furthest west. Their families are—1st, the Ugric, including Hungarians, Voguls, and Ostiaks; 2nd, the Bulgaric, who advanced from the Asiatic Bulgaria to the country now so called; 3rdly, the Permic; and 4thly, the Chudic, including Lapps, Finns, and Esthonians. Of these Finnic peoples the Hungarians and the Finns are the most civilised; and the Kalevala is a native epic which has been called the Turanian Iliad, and which, to the student of Asiatic mythology, is of the greatest possible value.

Next to these Finnic peoples the Turkic tribes have to be considered. From the Oxus they pushed gradually westwards into Asia Minor and Mesopotamia. The Turks, Turkomans, and Siberians, the races of Anatolia and Roumelia, the inhabitants of the Crimea, are classed by Max Müller as Turkic, and the

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modern Turkish language, with its wonderful grammar and its vocabulary full of Arabic, Persian, and other foreign words, represents the results of centuries of foreign influence on the hardy horsemen of Central Asia.

The eastern groups—the Mongols and the Tunguse peoples near China need not arrest our attention. It is with the migrants who went west that we have evidently to do, not so much with those who went east or south towards China and India.

Now among the great discoveries of the cuneiform scholars none is more wonderful than that of a Turanian population existing long before 2000 B.C. in Mesopotamia. The ancient Akkadian language is thought to have become a dead language about 1500 B.C. The language of the common people of Media, known by the inscriptions of the Achæmenidæ after the fall of Babylon, has been closely studied by Lenormant, and he says it is found to approach both in its grammar and in its vocabulary to the Akkadian—this is the so-called Proto-Medic; further south the Susian language, though its grammar differs, yet retains many of the old noun and verb roots of Akkadian quite in a recognisable form; and is said, indeed, to be nearer Akkadian than is the Proto-Medic. There are other dialects called Cassite and Sumerian, distinguished, yet akin to Akkadian, and Akkadian being some 2,000 years older than Proto-Medic, being in fact the oldest known Turanian language of Western Asia, has even been called the Sanskrit of Turanian tongues.

The investigation of Akkadian has led to just the results which might naturally be expected. It is found to differ in structure from any modern Altaic tongue, but to be nearest to the Finnic languages or more probably to the Turkic. The Finns call themselves Suoma-lainen, or "fen dwellers," a word which the great French scholar Lenormant compares with the name Sumerian, which was proper to the inhabitants of the lowlands near the Euphrates and the Tigris, as distinguished from the Akkadians or "highlanders." Whether the Finns came westwards or pushed northwards practically they are the same original people, we may say, as the old Altaic race of Chaldea. Finnic and Turkic languages supply a key to the Akkadian cuneiform like that supplied by Coptic for Egyptian.

Another scholar working without any reference to the Akkadians in the first instance has demonstrated the fact that the ancient Etruscan race in Italy was also Altaic and that the Etruscan language is akin to the Finnic languages. This student was Dr. Isaac Taylor, and on comparing his Etruscan vocabulary with Akkadian I found many words which are the

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same, including nearly every word which he had been able to fix by comparison with Finnic languages.

But yet more, although Basque is not grouped as an Altaic language but with Esquimaux as an "incorporating tongue," that is to say, one perhaps more primitive than the Finnic, still Lenormant has shown that the vocabulary and the grammar of the Basque both shew a connection with Akkadian. Even in Egypt, though the language is distinct, a certain number of loan words are said to have been discovered which are identical with Finnic words. These separate studies by distinguished students serve then to connect more or less the Finns, the Basques, the ancient Etruscans (and to a certain degree even the Egyptians) with the old Turanian populations of Mesopotamia.

Tracing back from Etruria or west from Media, we shall find it possible perhaps to fill up the gap also in Asia Minor. The Etruscans are said to have been related to the Carians, Lycians, and Lydians; and Lenormant long ago stated as a fact that all across what is now Anatolia an ancient Turanian population existed akin to the Akkadians. The Carian and Lycian mercenaries found their way to Egypt, and the evidence of palæography seems to show that the same population may have existed in Cyprus. The Etruscans were a sturdy, big-headed people, with eyes oblique like the Chinese, black hair, high cheek bones, squat figures, and without beard or moustache. If we go to Cappadocia and look at the monuments cut on the rocks we find exactly the same type—the sturdy figure, short nose, and hairless mouth. This type of race recalls that of the Mongols in later times as described by travellers, and it is as much contrasted as possible with the Semitic type.

Seeing then that the Hittites were shut in on all sides by Turanian tribes, said to be akin to the Akkadians, and remembering their own Mongolian appearance, we might be justified in supposing that they belonged to the same race. In Akkadian and Etruscan and Proto-Medic we have ancient languages, which we may perhaps compare with that spoken by the Hittites.

A curious peculiarity of dress also serves to indicate the same general connection. In Cappadocia and in Anatolia the monuments represent figures with a boot or shoe curled up in front. An Assyrian representation of an Armenian merchant shows the same boot. Prof. Sayce has called it a snow-shoe, but I think Sir C. Wilson first compared it with the boot now worn by the peasantry of Asia Minor. Perrot compares it with the cavalry boot worn in Syria, and with what we call a Turkish slipper. I find also that the Etruscans wore a similar shoe called *Calceus Repandus* by the Romans. On the monuments

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at Karnak the Hittites are represented wearing the same shoe, and although it is not of necessity a mark of race, it is still curious that this curly-toed boot was common to the various Turanian peoples of Syria, Asia Minor, Armenia, and Italy.

But as regards the language it may be asked: How do we know monumentally what language the Hittites spoke? We may know from the names of their kings, and from the names of towns in the Hittite country, as recorded by the scribes of Rameses II and of Thothmes III. The topographical lists are about as old as 1600 B.C., and the lists of kings about as old as 1340 B.C. The scholars who have written on this subject, from Chabas downwards, have agreed in saying that the names of the Hittite kings are not Semitic, and not Aryan, and that they must either be Turanian, or belong to that class of languages of the Caucasus, which has been called Alarodian. In a list of twenty-five royal names, we find the words Tar, Sar, Nazi, Lar, and others repeated as personal names. These are not new or unknown words at all. They occur in the languages already noticed. Unless some new reading is pronounced to be correct in cuneiform we have Tar, Sar, Nazi, occurring in personal names in Akkadian and in Proto-Medic; and in Susian also Nazi occurs. Lar is a very familar Etruscan word for a chief, and I venture to compare it with *lul* and *rar* for chief, enumerated as Akkadian words in Prof. Sayce's "Assyrian Grammar." There are many similar cases in the name list in question, and although such evidence is, of course, not sufficient to show that the Hittites talked Akkadian, it seems to me strongly to favour the view that they gave to their kings titles which can be shown to be common words meaning "king," "chief," or "prince," traceable through very many Altaic languages or dialects.

The topographical name lists are not only earlier, but they are more valuable, because they include no less than 200 names. They are, however, very difficult to study for several reasons. Mariette, Maspero, and other scholars have given much attention to these lists, which occur in hieroglyphic writing at Karnak. It appears to be generally recognised—and I believe Lenormant held the same view—that the names in question are in some cases Semitic, and in other cases—probably in the majority—non-Semitic. The first difficulty then is to distinguish between these two classes of names. Kadesh, for instance, the Hittite southern capital, had an evidently Semitic name; but Carchemish, their northern capital, had a name which is not Semitic, according to general opinion. In addition to this difficulty there is the difficulty of correctly deciphering the hieroglyphic signs. There is not a complete agreement apparently on this point. What some scholars have taken as a

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determinative, others have read as a syllable, and the characters on the walls of the Karnak Temple—some of which are quite obliterated—have been differently represented.

But even with all these drawbacks, there remains a great deal that is certainly known and generally agreed to concerning these town names, and I believe it is recognised that next to the study of the names for numbers, for relationships, and for very common objects, the geographical names of a country afford some of the most valuable possible evidence concerning the race which gave those names. The lists in question I have studied geographically for ten years, and a great many suggestions as to the probable sites, in the south especially, which I ventured to put forward in 1876, I find to have been accepted by M. Maspero, and by Rev. H. G. Tomkins, who has devoted much labour to this question, and appears to have fixed many of the sites in northern Syria and Asia Minor. Going over these lists again and again with the hieroglyphics before me and with the aid of the papers by M. Maspero, Mr. Tomkins, and Prof. Sayce, it has seemed to me more and more clear that the sounds in a great many cases are the same to which I find a geographical meaning attached in the glossaries of Akkadian prepared by Lenormant, by Delitszch, and by others.

I am, of course, aware that the study of Akkadian is so rapidly advancing, that sounds which occur in all the books written some years ago may now be considered incorrect by the accepted authorities. It is also certain that as a great many of these sounds are common to all the various Finnic and Turkic languages, they would not serve to do more than to establish generally an Altaic connection. But even this would be a great gain, and I think that by using the works of Donner, of Castren, and of Vambery, on which Lenormant used to rely in fixing the pronounciation of Akkadian words, it ought at least to be possible to arrive through these lists at a general idea of the language spoken in the Hittite country between 1600 and 1300 B.C. If we take, for instance, the word *Ma*, which Lenormant and F. Delitszch, in their Akkadian glossaries, have stated to be an Akkadian word for country, and which Dr. Taylor believes can be recognised in Etruscan, we find that it exists as the word for country in all the Finnic languages. Thus, even if scholars are convinced that in Akkadian it ought to to be read as *Mat*, and in Proto-Medic as *Murun*—words which were known to Lenormant—it still appears probable that it must be a very old Altaic word, because it is common to so many Altaic languages. It would, therefore, be a very valuable word to recognise in Hittite nomenclature, if it can be shown that in Hittite it had the same meaning. I venture to

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say that if these valuable geographical lists are studied on this principle, it will become possible to show in a convincing manner that the Hittite language was akin to the languages of Mesopotamia and of Media, at least in possessing these simple roots which are traceable, hardly changing, in existing Altaic tongues.

The personal and geographical names also give some evidence —as has been shewn by Prof. Sayce—of the grammar of the language. The genitive appears, at least in many cases, to precede the nominative, which would not be possible in a Semitic language, but which is often found to be the order used in Altaic speech. This does not appear, however, to have been an invariable rule in Hittite, if we are to acknowledge the celebrated boss of Tarkondemos as Hittite. On that boss the genitive appears to follow the nominative, according to Prof. Sayce's arrangement of the symbols, the order being the same found in Akkadian; as, for instance, in the tablet of Singasid as read by Mr. Pinches. In the Proto-Medic languages, according to Lenormant, the genitive may either precede or may follow the nominative—possibly then, from the evidence above mentioned, the same may have been the case also in the Hittite. There is not, indeed, any evidence that the Hittites spoke Akkadian, but I venture to think that there is considerable *prima facie* evidence in favour of their language having affinities at least to that ancient tongue, evidence quite sufficient to justify further research on such a supposition.

The third branch of enquiry is that which concerns the religion of the Hittites, and concerning this we may gather a great deal of valuable information, both from the Egyptian records, from the name lists already noticed, and from sculptures and gems more or less clearly connected with the Hittite race. In the famous treaty with Rameses II, the Hittites invoked the gods, and especially one called Sutekh, with the rivers, the mountains, and the clouds, the winds, and the sea. No less than a "thousand gods" are said to have existed in the Hittite country; and this I suppose may be taken to indicate an animistic belief like that which gave a nymph to every stream, a dryad to every tree, a god to every great mountain, among the Greeks. This belief in numerous spirits, good and bad, in beneficent deities of the sun, the moon, the ocean, and the rivers, also clearly existed among the ancient Turanian populations of Media and of Mesopotamia. As regards Sutekh or Sut (for Chabas has given reasons for supposing that the name occurs in both forms), he has been generally supposed to be the same as the god Sut or Set, who from an early period was worshipped also in Egypt. His name does not appear as yet to have been

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found among those of gods invoked by the Akkadians, though Lenormant mentions as possible a connection with a god called Shita among the Assyrians. In Phœnicia, close to the Hittite country, several gods, originally Akkadian, appear to have been adored until quite late historic times. Adonis has been said to be the same as Tammuz, originally an Akkadian god; and Nergal is perhaps another instance. He was represented with a lion's head, and his portrait occurs on a bas relief, discovered on the Phœnician coast, while his name is known in connection with a Phœnician settler in Greece. Nergal, however, was also adored by the Semitic race of Mesopotamia. Quite lately in Anatolia the same lion-headed god has been found represented, but the bas relief bears no inscription, except a possible hieroglyph above the head, which represents a long-eared animal, perhaps a hare or an ass.

The representation of deities at Boghaz Keui, in Cappadocia, may also throw light on Hittite religion. Prof. Sayce considers that the Hittites were a Cappadocian people; and, as already noted, the sturdy figures, the hairless faces, and the shoes, serve to connect these figures both with the Hittites, and also with the Etruscans.

It has been doubted whether all the figures at Boghaz Keui are to be considered to represent gods, although the invocation of a "thousand gods" by the Hittites shows that there is no impossibility in their having represented a great number of deities in one picture. The winged figures at least, both in Cappadocia and also at Carchemish, can hardly be meant for anything but divine persons; and I think the same will be admitted concerning the figures standing erect on the backs of lions. In Phœnicia and on Greek Asiatic coins gods are so represented, and in Hindu mythology every deity has his appropriate *Vehan*, or animal, on which he stands.

At Boghaz Keui the winged sun is sculptured above one of the chief figures. At Eyuk we have rude representations of sphinxes, recalling not only the Egyptian sphinx, but also similar monsters on seals from Mesopotamia, or represented in Etruria, where the scarabeus was as much a sacred emblem as in Phœnicia or in Egypt. At Ibreez there is a gigantic figure, supposed to represent a god, which has a horned head-dress, like that which the water-god Ea wears on seals, said to be Babylonian or Akkadian. This giant in curly-toed shoes and a short tunic, like that of the Cappadocian gods, holds in one hand a vine, in the other a long stalk of corn-ears. He clearly represents a god of corn and wine, and over his head occurs an inscription in what is now known as Hittite writing. In this case curiously enough both the god and the king or priest, who

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approaches him, wear beards in the Phœnician or Greek fashion, whereas the Cappadocian figures are beardless. The general evidence of the monuments and records, seems clearly to show that the Hittite religion must have been of the same character as that of the Egyptians, Etruscans, and Akkadians, consisting in the personification of natural powers: the sun and moon, the ocean, the earth, with genii of the rivers and mountains, the winds and clouds. There does not seem, as far as I can gather, any evidence of their having worshipped seven planets, nor are the stars and planets invoked in the treaty—these were the gods of the Semitic rather than of the Turanian peoples of Western Asia.

The female figures of the monuments are very interesting. The two principal types as found at Carchemish and at Merash, represent, the one a naked goddess with her hands supporting her breasts, the other a mother goddess with a child on her knees. Both these figures are widely found all over Asia. At Carchemish, the naked goddess has wings. At Troy, and recently in Mesopotamia, this figure occurs. I have seen a pottery representation of the same goddess in the same attitude found at Gezer in Philistia, and the figure is common in Phœnicia and in Cyprus. A Hindu goddess is represented in the same attitude, pressing streams of milk from her breasts to nourish creation.

The group of the mother and child is equally widely spread. In India, Krishna and Devaki; in Babylonia, the mother goddess Nana; in Egypt, Isis with the infant Horus; in Italy, Lucina with her child, represent the same group, which Lenormant traces in many other cases. The Merash representation is extremely rude, but it shews that the same mother goddess and child were also worshipped in the Hittite country. So far then the evidence of the sculptures shews nothing very distinctive in Hittite religion, although the absence of the stars and planets from the enumeration of their thousand gods seems to shew their non-Semitic race.

The monuments naturally tell us less of the demonology than of the worship of the Hittites, yet even on this question some light is thrown. The belief in innumerable demons, common to all Asiatics, was a prominent feature in the religion of Akkadians and Etruscans. A cylinder found in Lydia, at Aidin, shews in the centre a two-headed god. In his right hand he holds a cross towards three worshippers; in his left, what looks like a whip towards two representations of demons who are fighting each other, with two hieroglyphics above them. In the Akkadian magical texts we have many occurrences of this idea. The charms of the priests were supposed to breed discord be-

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tween the demons, who were thus unable to unite their forces against mankind. There are several other curious figures on this cylinder, one being that of a god seated on a mountain and flanked by human figures with eagle's heads. Under his feet is a deer which seems to be his emblem. This, perhaps, connects him with Dara ("the deer") one of the names of the Akkadian god Ea, possibly connected with the Esthonian and Etruscan word Tara, for "God," and thus with the deity called Tar, in Asia Minor.

On a very remarkable bronze plaque from Palmyra, the two demons tearing each other are again represented; and in Etruria we have representations of good spirits painted red, aud demons coloured black.

If it be granted on these various grounds of physiognomical, religious, and linguistic connection that the Hittites were a Turanian and probably an Altaic race—and these suppositions I have not seen seriously controverted of late by any who have given special attention to the subject, we are able to form some idea of the probable customs of the race in remarkable and distinctive peculiarities, concerning birth, marriage, death, dress, war, and the arts and manufactures. The records and the monuments both throw light, more or less, on all these questions.

The social manners of the Turanians are very astonishing in our eyes. The extraordinary custom of the Couvade appears to have originated among them. We hear nothing of it among Semitic people, but it existed among the Basques; Strabo mentions it among the Iberians; and Marco Polo found it in China. It has been traced by Tylor and by Colonel Yule in many other countries. According to this custom, no sooner was a child born than the father was obliged to go to his bed, and was fed on special diet, apparently from some dim idea that any illness due to over-exertion or exposure of the father would also affect the infant. We do not, indeed, know of this custom among the Akkadians or the Hittites; but it certainly prevailed among some Altaic peoples. Apollonius Rhodius (as quoted by Colonel Yule) refers to the Couvade among the Tibareni in Pontus.

The marriage customs of the early Turanians were equally curious. Dr. Taylor gives some evidence in favour of the supposition that the Etruscans traced descent in the female line, not in the male; which also was the custom of the population (probably non-Semitic) of the south of Arabia in Strabo's time. This custom is closely connected with the practices of exogamy and of polyandry among Turanian peoples. According to the polyandrous custom, a woman was recognised as having two,

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three, or more husbands—as is still the practice of many tribes in India, and further north. Exogamy, as Dr. Taylor points out, was probably connected with polyandry, since the only way by which a man could obtain exclusive right to a wife among polyandrous tribes was by purchasing or capturing one from another tribe. The Etruscans appear to have been exogamous, and the Hittites, according to the Bible, married out of their own tribe—at least in the case of the women.

As regards the disposal of the dead, it is certain that many at least of the Turanian peoples used to burn instead of burying. The Semitic people seem, historically, to have been always a burying people. The custom of burning the dead, which can be traced from Britain on the west to China on the east, was originally the usual practice among all the Finnic peoples. The late George Smith was, I believe, the first to point out that the Akkadians were probably a people who did not bury, but burned the dead. Dr. Taylor is of opinion that the earlier Etruscans burned the dead, and only buried in later times. The Aryan tribes seem to have had both practices; the later Medes and Persians had the yet more extraordinary custom of exposing the dead to be eaten by dogs and birds, as Herodotus states, and as we find from the Zendavesta to have been inculcated in the Zoroastrian creed. If the Hittites resembled the Akkadians or the Etruscans, it would seem, therefore, most probable that they were a burning people, and we should hardly expect to find tombs like those of the Phœnicians, or mummies like the Egyptian mummies, or even tumuli such as those in which some British, Greek, and Scythian tribes interred the corpses of their chiefs.

I should note that an interesting paper on the subject of such burning of the dead among the Akkadians has lately been published by M. Bertin, who has given strong confirmatory evidence of the practice from cuneiform records.

It would be, perhaps, not prudent to inquire if the Hittites drank Koumis, or fermented mare's milk, but of the antiquity of that custom among Turanians, we have evidence in Herodotus. The Hittites were, at least, a great horse-breeding people, and used numerous chariots in time of war. Mr. Houghton believes that Media and Armenia are the home of the horse, and the Kurdish and Turkoman horsemen are still famous. In Syria, a great number of horses are still imported from this same part of Asia.

From the monuments we obtain clear indications of the Hittite arms and armour. They used the bow, the spear, the javelin, the double-headed celt or axe. They had short, broad swords like that still in use among the wilder Arabs. The

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figures in some cases have what may be taken for a whip, like the modern kourbach, in their hands. A square buckler is represented covering one of the chiefs in his war chariot. The quiver was, no doubt, slung at the chariot side as among Egyptians and Assyrians. In addition to these weapons a short club with a round head is often represented—a kind of sceptre, perhaps, and not unlike the *dabbûs* club still carried by the peasantry of Palestine. The sceptres borne by the gods at Boghaz Keui, are sometimes surmounted by a globe, in other cases they seem to be intended to represent flowering rods like that which occurs in the hand of one of the great figures in the British Museum.

The most distinctive peculiarities of dress among the tribes under consideration, are, the high cap, or tiara, which resembles very closely that worn by Moslem dervishes in our own times; the curly-toed boots or shoes already mentioned, and found to distinguish the Hittites on the bas reliefs of Karnak; and the short tunics of the male figures. The goddesses wear long dresses represented with many vertical folds, and a high bonnet, which is very much like that of the Bethlehem peasant women. A round skull-cap and an ample cloak are also found on some male figures.

As regards the political constitution of the Hittite tribes, and their laws and civilisation, something may be gathered from both Egyptian and Assyrian sources. Thus it appears that there were numerous chiefs in different parts of the country, but how far these were independent or acknowledged one "great king" seems to be matter for further inquiry. Thus much we know that a great federation was arranged in face of Egyptian aggression, and that Rameses and his predecessors apparently recognised the ruler of Kadesh as the principal Hittite king. It seems probable that as among other Orientals the actual political situation depended on the personality of the ruler, and that the combinations were continually altering, as among Arabs, Kaffirs, Afghans, or any other wild and disunited peoples. The celebrated treaty between Kheta-Sar and Rameses, which was engraved on a silver plate, recognises various grades of society. The Hittites had chiefs and slaves, but also skilled workmen, whose labours were in request in Egypt, and they admitted Egyptian craftsmen into their country. In fact, the extended trade relations between Mesopotamia, Syria, Phœnicia, and Egypt, which can be traced back earlier that 1600 B.C., give us an idea of the civilisation of the west of Asia, which would hardly be suspected if we confined our attention to records of fleeting conquests which constitute the political history of the time.

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As regards architecture, we have a representation of the city of Kadesh, which shews that in the 14th century B.C., the Hittites must have advanced far in this art. A town with high walls and numerous towers is represented from which the bowmen discharge their arrows. A double moat surrounds it, and bridges or causeways lead over the water. To the present day there are remains of this moat surrounding the great mound at the ruin of Kades, which I proposed, in 1881, to identify with the Hittite capital—an identification which I now find to be very generally accepted, since it has survived the criticism levelled against it. We do not know much as yet about Hittite temples; and the representations of the gods are often cut only on rocks beside rivers; but I believe that at Ibreez one of the hieroglyphic signs may be taken to represent an oblong building with an inner enclosure or shrine resembling the form of temple known among the Akkadians and Egyptians, and also among the Hebrews from Solomon to Herod, as well as among the Greeks. The high mounds on which the Hittite towns stood—like the cities of Mesopotamia and of Palestine—were apparently faced with stone, forming terraces; and the supporting slabs were sculptured with various designs. In one instance in Asia Minor the chase of the stag, and of the hind, by a bowman, is so represented with a winged, ramping gryphon. In another case the lion-headed god occurs, holding a fawn or a hare in one hand, and a sword in the other—the same figure already known in Phœnicia, and also in Cappadocia. Perhaps, however, the most distinctive of the Hittite and Cappadocian figures is the doubled headed eagle found at Boghaz Keui and at Eyuk, which has been pointed out to be an Altaic symbol used in the middle ages by the Seljuks, and also adopted by the Franks, so that to our own times it survives in the arms of the Austrian and Russian emperors. It appears fairly certain that the walls and entrances of the Hittite temples and palaces must have been adorned with bas reliefs and hieroglyphic inscriptions, just as statues of the gods flanked the doors of Assyrian and of Akkadian buildings, or covered the pylons of Egyptian temples. At Merash, a lion covered with hieroglyphics in front and on the left flank was evidently intended as a corner stone, and one of the Hamath stones inscribed at one end and on one side was in like manner intended for a corner position.

That the Hittites possessed the art of writing is thought to be shewn by the mention of a Hittite scribe in an Egyptian record; and it is generally agreed that the hieroglyphic texts found at Hamath and at Carchemish represent the script employed.

It is also now generally agreed that the syllabic sounds of what has been called the Asianic syllabary stand to these

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hieroglyphics in the relation of the hieratic to the hieroglyphic in Egypt, so that from the known sounds of this syllabary as deciphered in Cyprus, in Caria, in Syria, and in Egypt it may be possible to recover one sound at least which attached to the corresponding original Hittite ideogram of the monuments.

As regards the data of these hieroglyphic texts there appears to be some doubt. Some authorities regard them as belonging to the latest times of Hittite rule but since in various cases we find the emblems to be much more or much less conventionalised it seems clear that a long period of time must have elapsed during which they were constantly in use. Thus the inscribed bowl discovered in Babylon bears figures much more like those of the syllabaries than are any found on the bas reliefs of Carchemish and of Hamath. The monuments on which the emblems are in relief must be considered probably to be older than those where the figures are cut in. In Egypt the oldest hieroglyphics in the Boulak Musæum are in bold relief, but by the time of Rameses II they appear to have been in intaglio. The syllabaries went out of use apparently about the time of the Greek conquest of Asia under Alexander the Great, and the hieroglyphic must be much older than the derived syllabic signs.

There is at least one case where we may obtain some idea of the date of a hieroglyphic text of the same general character with those of the Hittites, viz., on the statue of Niobe on Mount Sipylus. Here we have the older emblems in relief and the cartouche of Rameses II cut in on the field of the bas relief. It seems clear that the cartouche is therefore later than the original work and the native hieroglyphics in this case appear consequently to be older than 1340 B.C. It appears to me that without any improbability we may therefore assign the Hamath and Carchemish stones to the best period of Hittite civilisation, when the Hittites were recognised by the Egyptians as a great civilised power, and when we know them to have already possessed scribes attached to their kings.

Now it will not I think be disputed that the existence of a hieroglyphic script among these peoples agrees with the agglutinative character of their language. This appears to be an invariable rule. The character and the speech go together, and as the speech develops so does the script become more conventional. The earliest attempt at recording human events or human hopes took the form of picture writing, like that of European Cave-men or of North American Indians, or of the Bushmen, whose pictures cover the rocks in South Africa. The hieroglyph is only a step beyond the pure picture, just as the earliest agglutinative language is only a step beyond the mono-

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syllabic stage, when as yet grammar has hardly any existence. As the idea of the male became the abstraction of the personal pronoun, so did the hieroglyphic representing the male become also the sign for "he;" and, as in Chinese, the noun for "interior" became the locative sign, so did every other grammatical sign develop from a root once a noun or a verb. This is laid down by so many great authorities as to serve for a safe basis in considering ancient written systems. When language advances to the inflexional stage the hieroglyphic becomes unsuitable to express the sounds, and the syllabary becomes a necessity. To carry the comparison yet further, the most perfectly inflected languages, the small Semitic group, belong exactly to those people who first employed the most abstract of human methods of recording sounds by inventing, or rather by developing, the Phœnician alphabet, whence in turn all the alphabets of Asia and of Europe have grown up.

There is, therefore, good reason to suppose that a simple, almost pictorial system must belong to a simple and early agglutinative language. We know of Semitic peoples who used syllabaries, as did Aryan races, but the hieroglyphic system of Egypt belong to a language of much more primitive character. The fact that the Hittites used hieroglyphs, the majority of which are unmistakeable pictures of natural objects, or of manufactured objects, though interspersed with other signs which appear already to have become conventionalised, agrees well with the supposition that their language was a simple agglutinative tongue like that of the Etruscans.

It has been shown by Lenormant, and by other writers, that the various known dialects of Mesopotamia, Media, and Elam, though differing considerably from each other, and belonging to very different historic periods, yet have in common much, both in structure and in vocabulary, which connects them to each other, and also connects them with living Altaic tongues. The same has been found as before said to be the case with Etruscan, which is connected on the one hand with Akkadian, and on the other with Finnic dialects. The Akkadian is far the oldest of these languages of the western Turanians. It is said by scholars to have become extinct in Chaldea in 1500 B.C., although it may have survived longer in parts more remote from the advancing tide of south Semitic immigration. Lenormant in Akkadian, Prof. Isaac Taylor in Etruscan, have shown how the monosyllabic roots recognised in those languages may be traced with but slight variation through a number of Finnic and Turkic languages of our own times. These roots are acknowledged to be the oldest elements of Turanian speech, and although we have not as yet (as in Aryan tongues) a Grimm's law laid down

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to rule the variations of sound, still there appears to be in Altaic speech a less degree of variation than in Aryan languages.

Now as already noticed the occurrence of the words Tar, Sar, Nazi, &c., in the names of Hittite kings leads naturally to the inquiry whether other such simple roots, common to various ancient and modern Altaic tongues may not also be discoverable in Hittite inscriptions. The syllabaries derived from the hieroglyphs give us the means of obtaining sounds, and these sounds may be compared both with Akkadian sounds, and also with sounds in living speech.

As regards the cuneiform sounds the question is extremely difficult because the progress of cuneiform learning constantly leads to the proposal of new readings for the Akkadian emblems; but as regards living languages it is often possible to shew that an old monosyllabic root, known as an Akkadian sound, has survived unchanged in many Altaic languages. It appears for instance that *Ma* for country must be a very old word, and Lenormant may have been right in saying it was an Akkadian word as previously explained. I believe that on the celebrated Hittite bilingual the emblem for "country" can be shewn to have the value *Me* or *Ma* by aid of the Carian and Cypriote syllabaries, where this emblem—a double peaked mountain—has preserved such a phonetic value.

The recovery of these old monosyllabic sounds will of course only give us a vague general idea of Hittite language. It is on the grammar much more than on the vocabulary that the classification of the language must depend. This is stated by Max Müller and by others; and it is recognised by Lenormant and by many other scholars that the older tongues of Chaldea are distinguished from modern languages of the Altaic group by the structure of their grammar. I do not think it will prove that the Hittites spoke Akkadian. The long words and complicated sentences which scholars of Akkadian give in their glossaries and in their translations, represent a language where the incorporation of a great many syllables with the old noun and verb roots is recognised. The general arrangement of the emblems on the Hittite texts does not suggest quite such an elaborate system of incorporation, and the Etruscan epitaphs appear to indicate a simpler form of speech.

But it is nevertheless possible that the roots may be found in Akkadian and that the comparison with living languages may thus be justified, by shewing the possible antiquity of the words represented by the Cypriote syllables. In studying Hittite we have at least this remarkable advantage over the cuneiform that the pictorial meaning of the majority of the emblems is easily

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recognised; thus serving as a check on the word supposed to be represented by the sound of the derived syllabic emblem. Of course each emblem may have had many names in Hittite, as each emblem in cuneiform also was connected with many sounds. If we see a king's head on a coin we may call it "monarch," "ruler," or "sovereign," but this does not disprove the existence of the old word "king," which, if independently proved to exist, may equally well be applied to the image. Thus the Hittite emblems were no doubt polyphones; but one out of many possible sounds, namely, a monosyllabic word, is preserved for us, probably by the syllabaries.

It appears to me that these are the principles on which we should study Hittite inscriptions. I will not attempt to defend my own tentative work in this direction. I am prepared to abandon anything that may be shewn untenable by competent authority in either words, grammar, or subject; but the first question appears to be the settlement of the principle on which to work. The Hittites have been thought by some to have been Semitic, and many attempts have been made to read these inscriptions as Semitic, and as either letters of the alphabet or letters and determinatives mingled. I think all such attempts must fail. We know already of 100 to 130 Hittite signs, a fact which indicates syllables rather than letters. Nor as far as I am aware have we any instance in which a real letter (as distinguished from a syllable) has ever been found in use in a system including true determinatives. The Hittite language has also been thought to have a possible connection with Georgian—a rude, inflexional language—but since Georgian has not as yet been shewn to throw any light on the bilingual, this connection can hardly as yet be considered to be demonstrated. The first important matter is to attain to an agreement as to the general principles on which the sounds and structure of the Hittite language are to be studied.

In concluding this general sketch of Hittite ethnology something may be said as to the arts of metallurgy and of engraving gems.

The Hittite chariots were plated with gold and silver, the treaty was engraved on a silver plate, the bilingual itself is on a silver boss. The use of the precious metals was not indeed peculiar to the race, since Akkadians, Phœnicians, prehistoric Greeks, and later Babylonians and Hebrews employed them in like manner to decorate houses and temples, and to adorn their persons; but the practice of metallurgy may, perhaps, also indicate a Turanian people coming from the mountains near the Caspian, where such ores were found. The Akkadians very early understood the art of alloying copper with tin.

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Bronze vases were captured in Syria by Thothmes III, and the Etruscan bronzes are as well known as those of Phœnicia. The beautiful forms of the metal utensils brought to Thothmes III by the Syrians in tribute, shews an advanced state of art in Western Asia in 1600 B.C., and we may hope to recover in Asia Minor, and perhaps in Syria, more hieroglyphic texts, and perhaps the much needed bilingual (which alone can set every doubt at rest) preserved in bronze, or in more precious metal.

As regards the art of engraving gems, this also was common to Akkadians, Babylonians, Phœnicians, and probably Hittites. It seems to me often very difficult to feel certain as to the origin of seals, cylinders, and gems, which are confidently called Hittite, in cases where there are no hieroglyphic signs to indicate their derivation. Seals from Cappadocia and Lydia might, perhaps, in many cases, be attributed to Altaic tribes akin to Hittites; in other cases they may be of Semitic origin. The curly-toed boot, or the tiara, are not in themselves sufficient evidence to convince the world in general. But on the other hand important indications of religious belief, and in a few cases, even probable hieroglyphics, have already been brought to light by study of these seals; and it appears probable that yet more information may be obtained from the same sources.

I trust, then, that the present sketch of an interesting subject may be sufficient to shew, first, that the existence of Hittite archæological materials is no mere dream of the antiquary; and secondly, that there are strong reasons for regarding the Hittites as a Turanian people, and as akin to the Turanian races of Media, Asia Minor, Mesopotamia, and Italy.

Discussion.

Mr. Bertin said that Captain Conder's interesting and exhaustive paper raised too many questions to be done justice to in a few remarks. He had made a great step, but he must be careful not to accept too easily statements made by others without any sound ground, as, for instance, the existence of a black population in Susiana; the common customs and the similar religion of two peoples only show intercourse, and not necessarily racial relationship. One of the most important points brought out by Captain Conder, if ultimately proved, is the Turanian origin of the writers of these inscriptions. Mr. S. Poole had on a previous occasion shown that the invaders of Egypt, the Shepherds, were Turanian, and that their national god we know was *Set*; Captain Conder is believed to have found this same name among the *Hittite* gods (the name Hittites is still provisional); and as on the other hand the Assyrian sculptural monuments show in Syria a non-Semitic population by the side of the Semites, there is likeliness in the

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possible Turanian origin of this so-called Hittite population. The Semites in the Jewish and Phœnician kingdoms may have composed perhaps a kind of aristocracy and have been in a minority. Mr. Bertin concluded his remarks by expressing the hope that Captain Conder would soon publish the inscriptions with the characters, his transcription and analysis.

Mr. HYDE CLARKE congratulated the Institute on this subject having again been brought forward, for it was to the Institute that the Hamath sculptures were first made known by their colleague, Sir Richard Burton, and their character as inscriptions was determined by himself. Since then that identification had been generally admitted, and many had devoted themselves to the study. To their old colleague, the Rev. Dunbar Heath, much was owing for his ingenious establishment of the parallel passages. The members therefore welcomed Captain Conder, who had devoted himself zealously and ardently to the undertaking, and it was to be hoped he would ultimately achieve the same success as had attended him in so many years of research in Palestine. For himself it was a matter of gratification to find so much of his early labour accepted and established. Before the Hamath epoch until now he had for thirty years been engaged on the examination of the question of the earliest populations of Asia Minor, on which the journals of their two original societies, the Ethnological and the Anthropological, contained several papers by him. That these populations were Turanian was an early datum of his, and he had in connection examined the relations of the Georgian language as well as others. The inscriptions and the boss of Tarkondemos he had in company with Mr. Svoboda, the traveller and painter, then present, examined before it was known they belonged to the Hamath, or, as now called, Khîta, group. Through Mr. Svoboda he had obtained the first accurate delineation of the pseudo Sesostris, near Ninfi, and he had ascertained the existence on it of characters non-Egyptian, although M. Renan contested his decision. He had also published this in his edition of Murray's handbook. With regard to the term Hittite he considered it inappropriate and calculated to lead the public astray in an inquiry which embraced not only Canaan, but Asia Minor and Etruria, and even beyond. It was curious that there were Hittite names, as he had shewn in 1871, which admitted of a Georgian form. The ideographic form of Khîta as glossed by the boss was, however, different, and he could not concur with Captain Conder that Akkad was there to be applied. It was not impossible that Khîta inscriptions could be read in Akkad, for he concurred with M. Georges Perrot, a great discoverer of Khîta monuments, that the inscriptions could probably be read in some six or seven languages, and of these he had published forms. Captain Conder adopted a correct mode in proposing a careful comparison of the palæography and of the languages. To shew that the characters in Khîta were descended from original ideographs, he produced some diagrams showing the distribution of characters in identical

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forms, so far off on one side as Western China, and on the other as Western Africa. He also exhibited diagrams of the boss of Tarkondemos, and of a corresponding form from Carchemish, and he stated that the first two characters, as deciphered by him, could readily be identified on the coins of Sardis and other places. Therefore the decipherment must be carried out as that which he had discovered of the corresponding languages. As far back as his first communication on the Hamath characters to this Society he had stated their resemblance to Cypriote, although in common with other characters; but he was not the author of the erroneous deduction now being made that the sounds of Cypriote and of the ideographic Khîta were consequently the same.

Captain CONDER said that with regard to the points mentioned by Mr. Bertin and Mr. Hyde Clarke, he had only a few words to say. As to the dark race, supposed to be recognised at Tell Loh, their existence or non-existence did not affect his subject, since he believed the Hittite to be an Altaic people. He was very glad to find that Mr. Bertin saw no objection to such a supposition. With respect to the position of women among the Akkadians, he was entirely of Mr. Bertin's opinion. It appeared to him that the position of women must always have been lowest when the race was least civilised, and that as the weaker sex woman is most honoured by the most cultivated people.

As regarded his proposed reading of the inscriptions, he wished it to be understood that the work was purely tentative, and put forward with the view of collecting the opinions of those who know best. He had as yet seen no reason to withdraw from any of his views, either as to general construction, or as to the subject of the texts; although he had no doubt that many of the details would require reconsideration. His desire was to demonstrate the existence of the simple roots, recoverable through the Cypriote, by means of comparative study of existing Altaic languages.

With respect to Georgian it was quite possible that some aid might be obtained from that language if it were the case (as Prof. Hommel states) that it had affinities to the Proto-Medic, since Proto-Medic is an acknowledged Altaic language and allied to Akkadian. This Georgian had not, however, been found to throw any light on the bilingual, nor had any Georgian words as yet been compared with Hittite words; whereas at least 45 words in the geographical and royal lists, noticed in his paper, may be compared with Akkadian, Proto-Medic, Susian, and Etruscan words, as well as with Finnish, Ostiak, Vogul, Turkish, and with some Tatar or Mongolian words, and even in a few cases with Chinese. The parent language from which the older Akkadian, Sumerian, and Cassite, and the later Median and Susian dialects developed, would, he confidently expected, be found to be that from which the Etruscan and the Hittite and Asia Minor Altaic dialects also sprang; and he also felt confident that, not only the texts from Cappadocia and from Ibreez, but also those from Hamath and from

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Carchemish, would be found to be religious, or rather magical, and not historical.

Postscript.

The following notes should be added to the paper:—1. The two-headed eagle mentioned in Cappadocia, &c., was also an Etruscan emblem. 2. The two-headed deity of Asia Minor and Egypt is to be compared with the Janus or Janis of the Etruscans. 3. The demon heads of the Jerablus text may be compared with representations of the Etruscan Charun, and with the Etruscan Gorgonian heads with protruding tongues. The same head occurs in Sicily, in Egypt, in Phœnicia, and in India, representing gods of death and of the infernal region. 4. The cup held by the goddess at Merash may be compared not only with the vase of Isis, but also with the cup held by Istar in Assyrian sculpture. Mr. Bertin connects the cup or bowl with the cuneiform emblem for the word *tin* ("life"), and there is no doubt that it is a widely-spread female emblem all over Asia.

Since reading this paper the author has continued his study by aid of living languages and has compared 800 Akkadian and 200 Median words with Tatar roots. He has traced some 200 Egyptian words to a Tatar origin and has compared nearly every Cypriote syllable with its Hittite original. He has also compared 60 Hittite and Archaic cuneiform signs, and about 40 Egyptian and Hittite, but finds evidence of a very early separation of these various systems. He also now believes the Phœnician alphabet to be clearly derived from the Hittite hieroglyphics. The Mongolian origin of the Hittites has also subsequently been accepted by Dr. Isaac Taylor and Prof. Sayce.

Mr. H. WALLACH exhibited some ancient Guancho skulls and other objects from his excavations in the Canary Islands, upon which he made some explanatory remarks.

The GUANCHOS.

By HENRY WALLACH, Esq.

DURING my recent stay at the Canary Islands, and in particular at Grand Canary, in the spring of 1887, I visited the abodes and ancient burial places of the Guanchos. I have climbed the mountain chains of Guayadeque (near Agimes), and explored, over precipices and rocks difficult of access, the sepulchres of that ancient and extinct race, where I excavated, amongst other finds, several skulls, three of which I have the honour to exhibit at the meeting of this Institute.

The skull which I have marked No. 3 is the skull (with lower jaw) of a man, in a perfect state of preservation, which demon-

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strates the peculiarities and characteristics of this race in a marked manner. The orbits are large and rectangular, the forehead short and well developed, and the curve is the one peculiar to the type. It shows the flattening of the parieto-occipital region, is well developed, and the occipital shows a prominent projection.

The skull is very long and dolichocephalous.

No. 2 is the diseased skull of an old woman. The forehead represents the character peculiar to this sex. The orbits are rather low, rectangular, and very large. The skull, generally speaking, shows in a pronounced way the peculiarity owned by this sex and race.

No. 1, the skull of a young man, exhibits the intermixture with other races, and demonstrates the result of the influence of the Semitic emigration.

I have further brought before this Institute tanned skins and specimens of vegetable tissues, being parts of garments likewise found in the sepulchres of Guayadeque.

I particularly desire to mention that during my stay at Las Palmas, I had the good fortune to make the acquaintance of Dr. Verneau of the Paris Museum d'Histoire Naturel, an authority on the Guanchos, who resided there on a Government mission extending over a number of years, and I am greatly indebted to Dr. Verneau for having drawn my attention to this interesting branch of science. In the following notes I have tried to give, in a small compass, the most important anthropological, ethnographical, and historical outlines of the Guanchos. As far as I have been able, I have utilized the results of my researches made on the spot, and I have further made use of those of others. I take this opportunity to acknowledge the kindness shown to me by Dr. Verneau.

Under the name of Guanchos are designated the primitive inhabitants of the Canarian Archipelago, although it is said the first European conquerors gave to the population of each of these islands a different name.

There, as in many other archipelagoes, has been noticed a variation in language between one island and another; and also in the different districts of more considerable extent even habits, customs, and the physical type varied.

The Guanchos were the ancient inhabitants of Teneriffe, and had most probably spread to the other islands. But in Teneriffe, it seems that they preserved themselves pure up to the time of the conquest; and even the type survives to our day in some southern hamlets.

A second ethnic type, which recalls that of the Arabs, has been particularly recognised through the study of the skulls found at La Isleta, the small peninsula to the north of Grand

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Canary. The neighbourhood of the African coast explains the presence of this element in the archipelago, which might have been introduced at the epoch of the extension of the Arab power in the north of Africa.

The Guancho type, in its craniological characteristics approaches to that of the ancient race of the Cro-Magnon.

As with the inhabitants of the lowlands of Vezère, the head is disharmonic. The skull is sub-dolichocephalous, very broad, the forehead low, and the prognathism never much accentuated.

A largely developed frontal sinus rises above the low and very large orbits, of rectangular aspect. The nose is straight, short, and thick, without being flat. In consequence of the great development of the bi-zygomatic diameter, and the sharp retreat of the maxilla part of the face, the cheek bones jut out very much.

The skull, generally speaking, is well proportioned, and its capacity is considerable. The parieto-occipital region is very much developed, and the occipital very often forms a pronounced projection. Other anatomical characteristics, resulting from the examination of the various parts of the skeleton render the opinion still more probable that the Guanchos resemble the race of the Cro-Magnon.

In fact with these islanders one meets with column-shaped thighbones, platycnemic tibiæ, the flattening of the shinbone on both surfaces, and perforated humeri[1] (46 per cent. in the Gulf of Risco de Petrigal, Tacaronte). On all the bones the muscular traces are very marked. In those places where the Arab element has taken root, and particularly with the people of La Isleta, the craniological and osteological characteristics are no longer the same.

As to the physical type of the Guanchos, according to the first historians of the conquest, they are described as a handsome race. They were rather tall, well-built, of athletic forms, and of a surprising agility. Their complexion was white and their hair light. The influence of the Arab emigration has been clearly proved by a partial alteration in certain islands. The women were handsome, and some of them have been specially mentioned as types of beauty. The Guanchos were a courageous, energetic, and warlike race, who for a long time struggled with tenacity against the European invaders before submitting to their domination.

What we know of their language leads us to believe that it

[1] A depression in the bone where the olecranic process is received, better known amongst inferior races.

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was connected with the idiom of the Berbers of the north of Africa, but had borrowed some elements from the Arabic. Certain expressions and proper names of ancient chieftains, still borne by certain families, are all that is left of this Guancho language, in place of which that of the conquerors has been substituted.

In many islands of the archipelago there are engraved on certain rocks signs, which only during the last few years have attracted the attention of those who have interested themselves in the history of the Canary Islands.

Domingo Vandewalle, a military governor of Las Palmas, was the first who in 1752 took up the idea of copying these; and it is also due to the perseverance of D. Aquilino Padran, a curate of Las Palmas, that anything about the inscription of Hierro has been brought to light.

In 1878 Dr. Verneau, who copied certain signs in the mountain of Cuatro Puertas, Grand Canary, was lucky enough to discover in the same island some genuine Libyan inscriptions. Situated in the ravines of Las Balos, these characters had never before been noticed.

The inscriptions in the Canarian Archipelago often contain characters so much deteriorated that it is sometimes difficult to copy the same faithfully. It is, according to Dr. Verneau, incontestable that the Canarian inscriptions are Numidic.

In fact we find here nearly all the signs of the Numidic inscriptions of Algiers and Tunis, as collected by General Faidherbe. So far there has been no clue discovered to solve the mystery of these—for the present—dead witnesses of a language, the deciphering of which is left to a special study, apparently of insurmountable difficulty.

The conclusions drawn by Dr. Verneau from the examination of the inscriptions, seem to corroborate those to which the study of the physical and ethnographical characters has led us.

In two of the islands of the archipelago (Teneriffe and Gomera) the Guancho type has been retained with more purity than in the others.

No inscriptions have up to this day been met with in these two islands, and therefore we may conclude that the Guanchos did not know how to write.

In the other islands we have found numerous Semitic traces, and at the same time we find here signs engraved in the rocks.

From all these facts we draw the conclusion, that the Numides, travelling from the neighbourhood of Carthage, and intermixing with the dominant Semitic race, landed in the Canary Islands. These are they who have written the inscriptions at Hierro and Grand Canary.

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The political and social institutions varied. In some parts, hereditary autocracy prevailed, whilst in others the government was elective. In certain islands polyandry was practised, in others monogamy only existed.

Almost all the Guanchos used to wear garments made of goat-skins and some of vegetable tissues, which have been found in the sepulchres of Grand Canary.

They had a taste for wearing ornaments, such as dangling finery and necklaces, consisting of fragments of wood, bone, and shells, worked in different designs. Beads of baked earth, cylindrical and of all sorts of shapes, with smooth or polished surfaces, mostly black and red in colour, were chiefly in use.

They were also in the habit of painting their bodies. Numerous objects made of baked earth and greatly varying in design, have been found in Grand Canary. Though a lengthy controversy left the object of these "Pintaderas" (a kind of seal), open to dispute, Dr. Verneau has proved that their sole object was to print the body in various colours. They manufactured rough pottery, mostly without decorations or ornamented by means of the finger-nail. Various implements in use by the ancient Guanchos are still common with their descendants; the most important being the mill for grinding Gofia. (Gofia is the Kooskoosou of the Berbers and Moors to this day). It consists of two grinding-stones resembling those met with even now among the Berber tribes of Morocco and Algiers. In their petty local wars, the weapons of the Guanchos were obviously the same as those of the ancient races of the south of Europe. The polished battle-axe was more in use in Grand Canary, whilst stone and obsidian, roughly cut, was better known in Teneriffe. Besides these they had the lance, the club, sometimes studded with pebbles, the javelin, and they may have known the shield. The numerous natural caves in the mountains served as places of habitation, while others, artificially excavated, spacious, and divided into various compartments were also used. In places where caves were not to be found, they built artificial shelter, small houses of circular shape, and according to the narrative of the conquerors they also built fortifications. The Guanchos were in the habit of embalming certain bodies before burial, and the proceedings apparently varied in the different islands. In Teneriffe and Grand Canary, the corpse was wrapped up in goat and sheep-skins, more or less in number, whilst in other parts a resinous substance was used to preserve the body, which afterwards was deposited in caves difficult of access, or buried under the tumuli. A particular class of persons was set apart to embalm bodies; women only being permitted to preserve bodies of their own sex, and men

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for men. The practice of embalming, however, was far from being generally adopted, and the larger number of corpses were simply deposited in caves, in tumuli, or in trenches without employing any means to preserve them from decay.

What we know about the Guancho religion is very obscure. There was a general belief in a Supreme Being called Acoran in Grand Canary, Achihuran in Teneriffe, Eraoranhan in Hierro, and Abora in Palma. The women of the island of Hierro worshipped a goddess under the name of Moneiba. According to tradition the male and female gods lived in mountains, whence they descended to listen to the prayer of the people. In other islands the people venerated the sun, the moon, the earth, and the stars. The belief in the evil spirit was nearly general. The demon of Teneriffe was called Guayota, and lived in the peak of Teyde, which was the hell, called Echeyde.

We have to put the question: Whence have the Guanchos come—that is to say, this race, which seems to have formed the nucleus of the population of the whole archipelago?

For several years past, certain French anthropologists have called attention to the great physical similarity and characteristics which existed between the Guanchos and the ancient French race of the lowlands of Vezère, the Cro-Magnon. The evidence which we possess permits us to state that this race, the Cro-Magnon, had emigrated in large bodies towards the south. It is certain that a branch of this race arrived in Italy. Representatives of this type have been found in Mentone, at Cantalupo (Roman Campagna), and further still at the Isola de Liri. Near the Pyrenees, we find the same type; near Segovia, in Spain (Province of Old Castilia), have lived, during the polished stone period, individuals who show the dolichocephaly of the people of the Cro-Magnon. Near Alhama, in the province of Grenada, skulls of this type have been excavated.

Without going further into details, we may conclude from what is already stated, that the race of Cro-Magnon emigrated towards the south, and crossed the Iberian Peninsula.

In the quaternary age in France, especially towards the neolithic epoch, it seems to have developed itself towards Spain. It arrived in the north of Africa, before the Roman period, as proved by the tombs of Roknia, and it is also probable that it reached the Canary Islands, before the Roman epoch. It follows, therefore, that the Guanchos are the descendants of the Cro-Magnon, who, shortly after their landing in the Canary Islands, had seen the arrival of people from the northern parts of Africa, with whom they entered into communication.

Family ties were established between the Guanchos and the

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former; and of this intermixture, which extended up to the conquest, have resulted these numerous mixed types which we find by the side of the almost absolutely pure race.

Etymology.

Nunez de la Peña tells us that the natives of Teneriffe called themselves Guanchinet, which the Spaniards corrupted into Guanchos.

Guan, meant person; and *Chinet* was the same as Teneriffe, so the two words combined signify a man of Teneriffe. *Tenerfiz* =Teneriffe, the island of Hell.

There are a great number of hypotheses in existence about the origin of the geographical name of the Canary Islands. The most acceptable appears to be that the islands, and in particular, Grand Canary, was so-called by the Carthaginians, on account of the great number of large dogs found.

To illustrate the Arab origin of some of the geographical names in the islands, I discovered, with the assistance of some Arab friends, the following names in Grand Canary, and notably on the north-east and east coasts:—

Moya.—*Moia*, water.

Firgas.—*Faradja*, giving ease, on account of its salutiferous mineral wells (still in existence).

Tamaraceita.—*Tamar*, a date tree (a lovely palm-grove rises on the slopes).

Telde.—*Tel*, a hill.

Tafira.—*Tafir*, dusty.

Guayadeque.—*Guaya* (Spanish), grief, sorrow; and *Dekkeh* (Arab), mound. Numerous sepulchres are found in these mountains.

On the west coast I trace:—

Aldea.—*Aldeah*, a village;

And in the south:—

The now extinct volcano Mount del Tabaybel.—*Tabál*, the beating of a drum, a rumbling noise.

Arrceife, the principal port in Lanzarote, is the Arab word *Arraseefah*, terrace.

Taissa.—*Taissah*, unfortunate.

Aissah.—*Aissah*, despair, because in close proximity to a crater now extinct.

APPENDIX.[1]

The Canarian Islands are said to have been known by the Carthaginians, who in their celebrated expedition of Hanno,

[1] From Major A. B. Ellis's "West African Islands," London, 1885.

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about 250 years before the Christian era, sailed along the African coast till they arrived within five degrees of the Equator. According to Pliny, the Carthaginians found the islands uninhabited, but saw in every direction the ruins of great buildings, which had been erected by former inhabitants. In more modern times the Canary Islands became first known to Europeans in 1326, when a French ship was driven there in a storm, and they were doubtless afterwards visited by other vessels of the same nationality.

The first record, however, of any communication between Europeans and the aborigines of the islands dates from 1385, when Fernando Peraza, of Sevilla, sailed for the Canarian Islands, with five ships and landed at Lanzarote, the most northerly of the group. According to the good old manner of the time, the, cruel invaders, without receiving any provocation, at once fired upon the inoffensive natives who came crowding down to look at them, killed and wounded many with their arrows, and so terrified the remainder, that they ran away. Other expeditions were subsequently undertaken, but it was not till 1402, at the epoch of Jean de Bethencourt, that any descent was made upon the Canary Islands. After several fruitless attempts in 1461, the Spaniards endeavoured to obtain, by fraud, that foothold which they were unable to obtain by force of arms. Of all the Canarians, the Guanchos of Teneriffe held out the longest against the conquerors. It was not till 1512 that they lost their independence and were entirely subdued by the Spaniards. In consequence of several causes, and particularly without doubt, that the ancient language of these islanders had to give way to Spanish, it had been generally admitted that the population had entirely perished, exterminated by the conqueror, or carried away by the plague of 1494.

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ANTHROPOLOGICAL MISCELLANEA.

ADDRESS *to the* ANTHROPOLOGICAL SECTION *of the* BRITISH ASSOCIATION *at* MANCHESTER.

By Prof. A. H. SAYCE, M.A., President of the Section.

SURPRISE has sometimes been expressed that anthropology, the science of man, should have been the last of the sciences to come into being. But the fact is not so strange as it seems at first sight to be. Science originated in curiosity, and the curiosity of primitive man, like the curiosity of a child, was first exercised upon the objects around him. The fact that we are separate from the world about us, and that the world about us is our own creation, is a conviction which grows but slowly in the mind either of the individual or of the race in general. The child says, "Charley likes this," before he learns to say, "*I* like this," and in most languages the objective case of the personal pronoun exhibits earlier forms than the nominative.

Moreover, it is only through the relations that exist between mankind and external nature that we can arrive at anything like a scientific knowledge of man. Science, it must be remembered, implies the discovery of general laws, and general laws are only possible if we deal, not with the single individual, but with individuals when grouped together in races, tribes, or communities. We can never take a photograph of the mind of an individual, but we can come to know the principles that govern the actions of bodies of men, and can employ the inductive method of science to discover the physical and moral characteristics of tribes and races. It is through the form of the skull, the nature of the language, the manners and customs, or the religious ideas of a people that we can gain a true conception of their history and character. The thinker who wishes to carry out the precept of the Delphian oracle and to "know himself" must study himself as reflected in the community to which he belongs. The sum of the sciences which deal with the relations of the community to the external world will constitute the science of anthropology.

The field occupied by the science is a vast one, and the several workers in it must be content to cultivate portions of it only. The age of "admirable Crichtons" is past; it would be impossible for a single student to cover with equal success the whole domain of anthropology. All that he can hope to do is to share the labour

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with others, and to concentrate his energies on but one or two departments in the wide field of research. A day may come when the work we have to perform will be accomplished, and our successors will reap the harvest that we have sown. But meanwhile we must each keep to our own special line of investigation, asking only that others whose studies have lain in a different direction shall help us with the results they have obtained.

I shall therefore make no apology for confining myself on the present occasion to those branches of anthropological study about which I know most. It is more particularly to the study of language, and the evidence we may derive from it as to the history and development of mankind, that I wish to direct your attention. It is in language that the thoughts and feelings of man are mirrored and embodied; it is through language that we learn the little we know about what is passing in the minds of others. Language is not only a means of intercommunication, it is also a record of the ideas and beliefs, the emotions and the hopes of the past generations of the world. In spoken language, accordingly, we may discover the fossilised records of early humanity, as well as the reflection of the thoughts that move the society of to-day. What fossils are to the geologist words are to the comparative philologist.

But we must be carefnl not to press the testimony of language beyond its legitimate limits. Language is essentially a social product, the creation of a community of men living together and moved by the same wants and desires. It is one of the chief bonds that bind a community together, and its existence and development depend upon the community to which it belongs. If the community is changed by conquest or intermarriage or any other cause the language of the community changes too. The individual who quits one community for another has at the same time to shift his language. The Frenchman who naturalises himself in England must acquire English; the negro who is born in the United States must adopt the language that is spoken there.

Language is thus a characteristic of a community, and not of an individual. The neglect of this fact has introduced untold mischief not only into philology, but into ethnology as well. Race and language have been confused together, and the fact that a man speaks a particular language has too often been assumed, in spite of daily experience, to prove that he belongs to a particular race. When scholars had discovered that the Sanskrit of India belonged to the same linguistic family as the European languages, they jumped to the conclusion that the dark-skinned Hindu and the light-haired Scandinavian must also belong to one and the same race. Time after time have I taken up books which sought to determine the racial affinities of savage or barbarous tribes by means of their language. Language and race, in short, have been used as synonymous terms.

The fallacy is still so common, still so frequently peeps out where we should least expect it, that I think it is hardly superfluous,

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even now, to draw attention to it. And yet we have only to look around us to see how contrary it is to all the facts of experience. We Englishmen are bound together by a common language, but the historian and the craniologist will alike tell us that the blood that runs in our veins is derived from a very various ancestry. Kelt and Teuton, Scandinavian and Roman have struggled together for the mastery in our island since it first came within the horizon of history, and in the remoter days of which history and tradition are silent archæology assures us that there were yet other races who fought and mingled together. The Jews have wandered through the world adopting the languages of the peoples among whom they have settled, and in Transylvania they even look upon an old form of Spanish as their sacred tongue. The Cornishman now speaks English; is he on that account less of a Kelt than the Welshman or the Breton?

Language, however, is not wholly without value to the ethnologist. Though a common language is not a test of race, it is a test of social contact. And social contact may mean—indeed very generally does mean—a certain amount of intermarriage as well. The penal laws passed against the Welsh in the fifteenth century were not sufficient to prevent marriages now and then between the Welsh and the English, and in spite of the social ostracism of the negro in the Northern States of America intermarriages have taken place there between the black and the white population. But in the case of such intermarrying the racial traits of one member only of the union are, as a general rule, preserved. The physical and moral type of the stronger parent prevails in the end, though it is often not easy to tell beforehand on which side the strength will lie. Sometimes, indeed, the physical and moral characters are not inherited together, the child following one of his parents in physical type while he inherits his moral and intellectual qualities from another. But even in such cases the types preserve a wonderful fixity, and testify to the difficulty of changing what we call the characteristics of race.

Herein lies one of the most obvious differences between race and language, a difference which is of itself sufficient to show how impossible it must be to argue from the one to the other. While the characteristics of race seem almost indelible, language is as fluctuating and variable as the waves of the sea. It is perpetually changing in the mouths of its speakers; nay, the individual can even forget the language of his childhood and acquire another which has not the remotest connection with it. A man cannot rid himself of the characteristics of race, but his language is like his clothing which he can strip off and change almost at will.

It seems to me that this is a fact of which only one explanation is possible. The distinctions of race must be older than the distinctions of language. On the monuments of Egypt, more than four thousand years ago, the Libyans are represented with the same fair European complexion as that of the modern Kabyles, and the painted tomb of Rekh-mâ-ra, a Theban prince who lived in the

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sixteenth century before our era, portrays the black-skinned negro, the olive-coloured Syrian, and the red-skinned Egyptian with all the physical peculiarities that distinguish their descendants to-day. The Egyptian language has ceased to be spoken even in its latest Coptic form, but the wooden figure of the "Sheikh el-beled" in the Bulaq Museum, carved 6,000 years ago, reproduces the features of many a *fellah* in the modern villages of the Nile. Within the limits of history racial characteristics have undergone no change.

I see, therefore, no escape from the conclusion that the chief distinctions of race were established long before man acquired language. If the statement made by M. de Mortillet is true, that the absence of the mental tubercle, or bony excrescence in which the tongue is inserted, in a skull of the Neanderthal type found at La Naulette, indicates an absence of the faculty of speech, one race at least of palæolithic man would have existed in Europe before it had as yet invented an articulate language. Indeed, it is difficult to believe that man has known how to speak for any very great length of time. On the one hand, it is true, languages may remain fixed and almost stationary for a long series of generations. Of this the Semitic languages afford a conspicuous example. Not only the very words, but even the very forms of grammar are still used by the Bedouin of Central Arabia that were employed by the Semitic Babylonians on their monuments five thousand years ago. At that early date the Semitic family of speech already existed with all its peculiarities, which have survived with but little alteration up to the present day. And when it is remembered that Old Egyptian, which comes before us as a literary and decaying language a thousand years earlier, was probably a sister of the parent Semitic speech, the period to which we must assign the formation and development of the latter cannot fall much short of ten thousand years before the Christian era. But on the other hand there is no language which does not bear upon its face the marks of its origin. We can still trace through the thin disguise of subsequent modifications and growth the elements, both lexical and grammatical, out of which language must have arisen. The Bushman dialects still preserve the inarticulate clicks which preceded articulate sounds in expressing ideas; behind the roots which the philologist discovers in allied groups of words lie, plainly visible, the imitations of natural sounds, or the instinctive utterances of human emotion; while the grammar of languages like Eskimaux or the Aztec of Mexico carries us back to the first mechanism for conveying the meaning of one speaker to another. The beginnings of articulate language are still too transparent to allow us to refer them to a very remote era. I once calculated that from thirty to forty thousand years is the utmost limit that we can allow to man as a speaking animal. In fact, the evidence that he is a drawing animal, derived from the pictured bones and horns of the palæolithic age, mounts back to a much earlier epoch than the evidence that he is a speaking animal.

Mr. Horatio Hale has lately started a very ingenious theory to

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account, not indeed for the origin of language in general, but for the origin of that vast number of apparently unallied families of speech which have existed in the world. He has come across examples of children who have invented and used languages of their own, refusing at the same time to speak the language they heard around them. As the children belonged to civilised communities the languages they invented did not spread beyond themselves, and after a time were forgotten by their own inventors. In an uncivilised community, however, it is quite conceivable that such a language might continue to be used by the children after they had begun to grow up and be communicated by them to their descendants. In this case a wholly new language would be started, which would have no affinities with any other, and after splitting into dialects would become the parent of numerous derived tongues. I must confess that the evidence brought forward by Mr. Hale in support of his theory is not quite convincing to me. It has yet to be proved that the words used by the children to whom he refers were not echoes of the words used by their elders. If they were, a language that originated in them would show more signs of lexical affinity to the older language than is the case with one family of speech when compared with another. On the other hand, the theory would tend to throw light on the curious fact that the morphological divisions of language are also geographical.

By the morphology of a language I mean its structure, that is to say, the mode in which the relations of grammar are expressed in a sentence, and the order in which they occur. These vary considerably, the chief variations being represented by the polysynthetic languages of America, the isolating languages of Eastern Asia, the postfixal languages of Central Asia, the prefixal languages of Africa, and the inflectional languages of Europe and Western Asia. Now it will be observed that each of these classes of language is associated with a particular part of the globe, the isolating languages, for example, being practically confined to Eastern Asia, and the polysynthetic languages to America. Within each class there are numerous families of speech between which no relationship can be discovered beyond that of a common structure; they agree morphologically, but their grammar and lexicon show no signs of connection. If we adopt Mr. Hale's theory we might suppose that the genealogically distinct families of speech grew up in the way he describes, while their morphological agreement would be accounted for by the inherited tendency of their children to run their thinking into a particular mould. The words and contrivances of grammar would be new, the mental framework in which they were set would be an inheritance from former generations.

I have spoken of the inflectional languages as belonging to Europe and Western Asia. This is true if we give a somewhat wide extension to the term inflectional, and make it include not only the Indo-European group, but the Georgian and Semitic groups as well. But, strictly speaking, the Indo-European, or Aryan, languages have a structure of their own, which differs very

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markedly from that of either the Georgian or the Semitic families. The Semitic mode of expressing the relations of grammar, by changing the vowels within a framework of consonants differs as much from the Aryan mode of expressing them by means of suffixes as does the Semitic partiality for words of three consonants from the Indo-European carelessness about the number of syllables in a word. Though it is quite true that the Semitic languages at times approach the Indo-European by using suffixes to denote the forms of grammar, while at other times the Indo-European languages may substitute internal vowel change for external flection, nevertheless, in general, the kind of flection employed by the two families of speech is of a totally different character.

This difference of structure, coupled with a complete difference in phonology, grammar, and lexion, has always seemed to me to negative the attempts that have been made to connect the Aryan and Semitic families of language together. The attempts have usually been based on the old confusion between language and race; both Aryans and Semites belong to the white race; therefore it was assumed their languages must be akin. As long as it was generally agreed that the primitive home of the Aryan languages was, like that of the Semitic languages, the western part of Asia, the confusion was excusable. If the earliest seats of the speakers of each were in geographical proximity, there was some reason for believing that languages which were alike spoken by members of the white race, and were alike classed as inflectional, would, when properly questioned, show signs of a common origin.

But that general agreement no longer exists. While the Asiatic origin of the Semitic languages is beyond dispute, scholars have of late years been coming more and more to the conclusion that Europe was the cradle of the Aryan tongues. Their European origin was first advocated by our countryman Dr. Latham, and was subsequently defended by the eminent comparative philologist Dr. Benfey; but it is only within the last half-dozen years that the theory has won its way to scientific recognition. Different lines of research have been converging towards the same result, and indicating North-eastern Europe as the starting-point of the Indo-European languages, while the evidences invoked in favour of their Asiatic origin have one and all broken down.

These evidences chiefly rested on the supposed superiority of Sanskrit over the other Indo-European languages as a representative of the parent-speech from which they were all descended. The grammar and phonology of Sanskrit were imagined to be more archaic, more faithful to the primitive pattern than those of its sister-tongues. It was argued that this implied a less amount of migration and change on the part of its speakers, a nearer residence, in fact, to the region where the parent-speech had once been spoken. As a comparison of the words denoting certain objects in the Indo-European languages showed that this region must have had a cold climate, it was placed on the slopes of the Hindu-Kush or at the sources of the Oxus and Jaxartes.

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But we now know that instead of being the most faithful representative of the parent-speech, Sanskrit is in many respects far less so than are its sister-languages of Europe. Its vocabulary, for instance, has been thrown into confusion by the coalescence of the three primitive vowel sounds ă, ĕ, ŏ into the single monotonous ă, a corruption which is paralleled by the coalescence of so many vowels in modern cultivated English in the so-called "neutral" ə. Greek, or even the Lithuanian, which may still be heard to-day from the lips of unlettered peasants, has preserved more faithfully than the Sanskrit of India the features of the parent Aryan. If the faithfulness of the record is any proof of the geographical proximity of one of the Indo-European languages to their common mother, it is in the neighbourhood of Lithuania, rather than in the neighbourhood of India, that we ought to look for traces of the first home of the Aryan family.

But the theory of the Asiatic origin of the Indo-European family has not only been deprived of its main support by the dethronement of Sanskrit, and the transfer of its primacy to the languages of Europe, what Professor Max Müller has termed "linguistic palæontology" has further assisted in overthrowing the crumbling edifice. When we find words of similar phonetic form and similar meaning in both the Asiatic and the European branches of the Aryan family—words, too, which it can be shown have not been borrowed by one Indo-European language from another—we are justified in concluding that the objects or phenomena denoted by them were already known to the speakers of the parent language.

* * * * *

Four years ago a valuable contribution to the linguistic palæontology of the Aryan languages was made by Professor Otto Schrader. For the first time the question was approached from the present level of comparative philology, and all words were excluded from comparison which did not satisfy the requirements of phonetic law. The results were sadly disquieting to the believers in that idyllic picture of primitive Aryan life to which we had so long been accustomed. Professor Schrader proved that the speakers of the parent Aryan language must not only have lived in a cold climate—a fact which was known already—but that they must have lived in the stone age, with the skins of wild beasts only to protect them from the rigours of the winter, and nothing better than stone weapons with which to ward off the attacks of savage animals. Their general culture was on a level with their general surroundings. It was little better than that of the Fuegian before he came into contact with European missionaries. The minuteness with which the varying degrees of family relationship were named, instead of indicating an advanced social life, as was formerly imagined, really indicated the direct contrary. The primitive Aryan was indeed acquainted with fire; he could even sew his skins together by means of needles of bone; and possibly could spin a little with the help of rude spindle-whorls; but beyond

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this his knowledge of the arts does not seem to have extended. If he made use of gold or meteoric iron, it was only of the unwrought pieces which he picked up from the ground and employed as ornaments; of the working of metals he was entirely ignorant. But he already practised a kind of rude agriculture, though the art of grinding corn was as yet unknown, and crushed spelt was eaten instead of bread; while the community to which he belonged was essentially that of pastoral nomads, who changed from season to season the miserable beehive huts of wattled mud in which they lived. They could count at least as far as a hundred, and believed in a multitude of ghosts and goblins, making offerings to the dead, and seeing in the bright sky a potent deity.

In calling the speaker of the Aryan parent-speech the primitive Aryan I must not be supposed to be prejudging the question as to the particular race to which he belonged. This is a question which has recently been handled with great ability by an Austrian anthropologist—Dr. Karl Penka. In a remarkable book, published at the end of last year, he endeavours to substantiate the hypothesis advanced in an earlier work, and to show that the first speakers of the Aryan languages were the fair-haired, blue-eyed, light-complexioned dolichocephalic race, which is still found in its greatest purity in Scandinavia; that it was this race which in the neolithic period spread southwards, imposing its yoke upon subject populations, like the Norsemen and Normans of later days, and carrying with it the dialects which afterwards developed into the Aryan languages; and that, finally, it was the same race which in the remote days of the palæolithic age inhabited western and central Europe, where it has left its remains in the typical skulls of Cannstatt and Engis. Dr. Penka would ascribe to its long residence in the semi-arctic climate of palæolithic Europe the permanent blanching of its skin and hair—a form of albinoism which Dr. Poesche in 1878 endeavoured to explain by the climatic conditions of the Rokitno marshes in Russia, where he placed the cradle of the white Aryan race.

It cannot be denied that all the probabilities are at present on Dr. Penka's side, so far as his main contention is concerned. Without denying that the speakers of the Aryan parent speech may have already included slaves or wives of an alien race, it is probable that the majority of them were of one blood. They formed a single community, nomad it is true, and therefore less likely to mix with foreigners, but still sufficiently a single community to speak a language the several dialects of which were so alike as to be mutually intelligible. In the social condition in which the speakers were, and in an age when the waste lands of of the world were still extensive, the greater part of such a community must necessarily, we should think, have belonged to the same race. . . . . Penka has striven to show that the animals whose bones or shells are found in the Scandinavian kitchen-middens are just those whose names are common to the Indo-European languages, or at all events the European section of

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the latter. Now, the skulls disinterred from the prehistoric burial-places of Denmark and the southern districts of Sweden and Norway are, for the most part, identical with the skulls still characteristic of the Scandinavian population where they accompany a fair skin and light hair and eyes. By combining these two facts we arrive at the conclusion that the fair Scandinavian race is the modern descendant of the race which spoke the parent language of the primitive Aryan community, and left traces of itself in the Scandinavian kitchen-middens. The conclusion is supported by the testimony of history. On the one hand, we have the testimony of classical writers that the Aryan-speaking Kelts of the Christian era were not the dark, small-limbed population which now occupies the larger part of France, but men of large stature, with the blue eyes and fair hair of their Teutonic brethren; while the ideal specimens of humanity conceived of by the aristocratic art of Italy and Greece were the golden-haired Apollo and the blue-eyed Athêne. On the other hand, it was from Scandinavia that in later times other bands of warriors poured forth, who made their way into the countries of the Mediterranean, and even Asia, and established themselves as conquering aristocracies in the midst of subject populations. The Kelts succeeded in reaching Asia Minor, the Scando-German hordes overthrew the Roman empire, the Northmen established themselves from Russia on the east to Iceland and Greenland on the west, and the Normans made Sicily their own long before the days of the German Frederick. The only point in which the later historical irruptions of the Scandinavian peoples differed from their prehistoric ones was, that while the later irruptions were made by sea, the older were made by land. The sail was unknown to the tribes of the north until the age of their intercourse with the Romans, from whom they borrowed both the conception and the name of the *sagulum*, or "sail." The course of their migrations must have followed the valleys of the great rivers.

If southern Scandinavia is thus to be regarded as the original home of the Aryan languages, and the race which first spoke those languages, and which we may therefore call Aryan, is to be identified with the Scandinavian type, it follows that the further south and east we advance from this primary starting-point the less pure will the type become. It will be in the neighbourhood of that starting-point and in northern Europe that we shall expect to find the largest number of undiluted Aryan languages and the purest examples of the Aryan breed. In Greece and Armenia, in Persia and India we must look for mixture and decay. And such indeed is the fact. Mr. Wharton has found, by a careful analysis of the Greek lexicon, that out of 2,740 primary words only 1,580 can be referred with any probability to an Indo-European origin, while the prevailing racial type in ancient as in modern Greece was distinctly non-Aryan. Indeed, I am inclined to believe that the culture revealed by the excavations at Mykênæ, Tiryns, and on other prehistoric Greek sites belonged not to a Hellenic but to a

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pre-Hellenic population, and that the Aryan Greeks first made their appearance in Hellas at the epoch of what later tradition called the Dorian immigration. It was to the north that Greek legends pointed as the primæval home of the Hellenic race and civilisation, and Dôdôna ever continued to be revered as the oldest sanctuary of the Hellenic world. In India it is notorious that the Aryan-speaking Hindus entered the country from the north-west, and failed to spread far into the burning plains of the south. The date of their invasion is uncertain, but for myself I have grave doubts whether it was earlier than the eighth or even the seventh century B.C. At all events it was not until after the seventh century B.C., as we now know from the express testimony of the cuneiform inscriptions of Van, that the Aryan-speaking Armenians entered the land which now bears their name, and recent philological researches have confirmed the assertion of Greek writers that the Armenians were a colony of the Phrygians who had themselves emigrated from Thrace. Up to the closing days of the Assyrian empire the monuments make it clear that no Aryans had as yet settled between the Kurdish ranges on the east and the Halys on the west.

But while the extension into Asia of what I will now, following Penka's example, call the Aryan race, seems to be referred to a comparatively recent period, there is a curious fact which goes to show that the same, or a closely allied, race once spread along the northern coast of Africa. On Egyptian monuments, which date back to the sixteenth century before our era, the Libyan tribes of this district are described and depicted as white. Their descendants are still to be found in the mountainous parts of the coast, those of Algeria being commonly known under the name of Kabyles. I saw a good deal of them last winter, and must confess to being greatly struck by their appearance. I had known, of course, that they belonged to the white race and were characterised by blue eyes and light hair, but I was not prepared to find that their complexion was of that transparent whiteness which freckles readily and is supposed to mark the so-called red Kelt. They are dolichocephalic, and as their skulls agree with those discovered in the prehistoric cromlechs of Roknia and other places it is plain that their distinctive features are not due, as was formerly supposed, to intermixture with the Vandals.

The cromlechs in which they once buried their dead are quite as remarkable as their physical characteristics. Cromlechs of a similar shape are found extending through Spain and western France to the northern portion of the British Isles. Since dolichocephalic skulls occur in connection with them, while the physical characteristics of the modern Kabyle resemble so strikingly those of a particular portion of the modern Irish population, we seem driven to infer that the Kabyle and the "red Kelt" are alike fragments of a race that once spread from Scotland and Ireland to the northern coast of Africa and interred its dead in chambers formed of five large blocks of stone. Though the custom of burying in these

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cromlechs continued into the bronze age, the majority of them go back to the neolithic period.

Are we to suppose, then, that one stream of Aryan immigrants, after making its way to the west, wandered along the western coast of Europe, and eventually crossed the Straits of Gibraltar and took possession of Africa? Or are we to believe that the Aryan race of Southern Scandinavia was allied in blood, though not in language, with a population which inhabited the extreme west of Europe, and had, it may be, at the close of the glacial epoch, passed over to the neighbouring mountains of Africa? It must be remembered that the Kabyle complexion is not precisely the same as that of the Scandinavian. Both are white, but the skin of the one has a semi-transparent appearance, while the whiteness of the other may be described as mealy. It will be worth while to determine whether between the dolichocephalism of the Kabyle and the dolichocephalism of the Scandinavian any distinction can be drawn.

The question has a bearing on the origin of a part of our own population. I have already compared the Kabyle with the "red Kelt." But the expression "red Kelt," like most popular expressions, is by no means exact. It confuses in one two distinct types. The large-limbed, red-haired Highlander, who calls to mind the description given of the Kelts by the Latin historians, stands in marked contrast to the small-limbed, light-complexioned Kelt of certain districts in Ireland, whose skin is freckled rather than burnt red by the sun. The determination of the several racial elements in these islands is particularly difficult on account of the intermixture of population, and nowhere is the difficulty greater than in the case of the Keltic portion of the community. Long before the Roman conquest the intrusive Aryan Kelt had been intermarrying with the older inhabitants of the country, who doubtless belonged to more than one race, the result being that the so-called Keltic race is an amalgamation of races differing physiologically but dominated by a common moral and intellectual character—the consequence of subjection for a long series of generations to the same conditions of life. It has become a commonplace of ethnology that the so-called Keltic race includes not only the fair complexioned Aryan Kelt, but also the "black Kelt" or Iberian with dark skin, black hair and eyes, and small limbs. The subject, however, is much more complex than this simple division would imply. We have seen that under the "red Kelt" are included two distinct varieties; the "black Kelt" is equally irreducible to a single type, while the fact that two types of "red" and "black" recur in the same family—my own, for example—not only indicates their long-continued intermixture, but suggests the existence of intermediate varieties. The limitations and relations of dolichocephalism and brachycephalism within the race also need further investigation. I hope that this meeting, held as it is on the borders of what is still a distinctively Keltic country, may help to settle these and similar problems.

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Meanwhile I will conclude this address, which has already extended to an inordinate length, by directing your attention to two lines of evidence which have an important bearing on the question of the extent to which the Keltic element enters into the existing British population. A few years ago it was the fashion to assert that the English people were mainly Teutonic in origin, and that the older British population had been exterminated in the protracted struggle it carried on with the heathen hordes of Anglo-Saxon invaders. The statement in the "Saxon Chronicle" was quoted that the garrison of Anderida, or Pevensey, when captured by the Saxons in A.D. 491, was all put to the sword. But it is obvious that the fact would not have been singled out for special mention had it not been exceptional, while it is equally obvious that invaders who came by sea can hardly have brought their wives and children with them, and must have sought for both wives and slaves in the natives of the island. Mr. Coote, in his "Romans of Britain," and Mr. Seebohm, in his "English Village Community," have pointed out the continuity of laws and customs and territorial rights between the Roman and the Saxon eras, presupposing a continuity of population, and anthropologists have insisted that the survival of early racial types in all parts of the country cannot be accounted for by the settlement of the Bretons who followed William the Conqueror, or of the Welsh who came into England when the penal laws against them were repealed by Henry VIII. But the advocates of the theory of extermination had always one argument which seemed to them unanswerable, and which indeed was the origin of their theory. The language of the Anglo-Saxons contains scarcely any words borrowed from Keltic. Such a fact was held to be inexplicable except on the hypothesis that the speakers of the Keltic dialects were all exterminated before any intercourse was possible between them and the invading Teuton.

But I think I can show that the fact admits of quite another explanation. Roman Britain was in the condition of Roman Gaul; it was a Roman province, so thoroughly Romanised indeed that before the end of the first century, according to Tacitus ("Agric.," 18–21), even the inhabitants of North Wales had adopted the Roman dress and the Roman habits of luxury. After four centuries of Roman domination it is not likely under these circumstances that the dialects of the British tribes would have resisted the encroachment of the Latin language any more than did the dialects of Gaul. The language, not only of government and law, but also of trade and military service, was Latin, while the slaves and servants who cultivated the soil were bound to understand the language of their masters. Moreover Britain was a military colony; the natives were drafted into the army, and there perforce had to speak Latin. If Latin had not been the language of the country at the time the Romans left it, the fact would have been little short of a miracle.

That it was so is certified by more than one piece of evidence.

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The inscriptions which have survived from the period of the Roman occupation are numerous; with the exception of three or four Greek ones, they are all in Latin. Of a Keltic language or dialect there is no trace. When the Romans had departed, and the inhabitants of Wales and Cornwall had been cut off from intercourse with the civilised world, Latin was still the ordinary language of the mortuary texts. It is only gradually that Keltic oghams take their place by the side of the Roman characters. When St. Patrick writes a letter to the Welsh prince of Cardiganshire, addressed not only to him but to his people as well, it is in the Latin language; when St. Germanus crosses into Britain to settle a theological controversy, and leads the people to victory against the Saxon invader, he has no difficulty in being understood; and the proper names of British leaders continue to be Roman long after the departure of the Roman legions. What clinches the matter, however, is the positive statement of Gildas, the British writer, the solitary witness who has survived to us from the dark period of heathen invasion. He asserts that the ships called "keels" by the Saxons were called *longæ naves* "in *our* language" ("nostra lingua").[1] In the middle of the sixth century, therefore, Latin was still the language of the Kelt south of the Roman Wall. Such being the case it is not Keltic but Latin words that we must expect to have been borrowed by Anglo-Saxon, if the British population, instead of being exterminated, lived under and by the side of their Teutonic invaders. Now these borrowed Latin words exist in plenty. They have come not only from the speech of the towns, but also from the speech of the country, proving that the country population must have used Latin like the inhabitants of the towns. In an interesting little book by Professor Earle on the Anglo-Saxon names of plants a list is given of the names of trees and vegetables that have been taken from a Latin source. Where the tree or the vegetable was one with which the invaders had not been acquainted in their original home, the name they gave to it was a Latin one, like the *cherry* or *cerasus*, the *box* or *buxus*, the *fennel* or *feniculum*, the *mallow* or *malva*, the *poppy* or *papaver*, the *radish* or *radix*. Such names they could have heard only from the serfs who tilled the ground for their new lords, not from the traders and soldiers of the cities. It is much the same when we turn to the names of agricultural implements which imply a higher order of culture than the simple plough or mattock, the name of which last, however, is itself of Keltic origin. Thus the coulter is the Latin *culter*, the sickle is the Latin *secula*. That other agricultural implements bore Teutonic names proves merely that the Saxons and Angles were already acquainted with them before they had quitted their primitive seats.

The philological argument has thus been cut away from under the feet of the advocates of the theory of extermination, and

[1] "Hist.," p. 23.

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shown to tell precisely the contrary tale. It has disappeared like the philological argument by which the theory of the origin of the Aryans in Asia was once supposed to be supported. But there still remains one difficulty in our path.

This is the fact that the languages spoken in Wales, and till recently in Cornwall, are Keltic and not Latin. If Latin had been the language of the Keltic population of southern Britain when the Romans left the island, how is it that where the Keltic population still retains a language of its own that language is Keltic? The answer to this question is to be found in history and tradition. Up to the sixth century the Teutonic invaders gained slowly but steadily upon the resisting Britons. They forced their way to the frontiers of what is now Wales, and there their further course was checked. The period when this took place is the period when Welsh literature first begins. But it begins, not in Wales, but in Strathclyde or South-western Scotland, to the north of the Roman Wall. Its first records relate to battles that took place in the neighbourhood of Carlisle. From thence its bards and heroes moved southwards into North Wales. Tradition commemorated the event as the arrival in Wales of "Cunedda's men." The sons of Cunedda founded the lines of princes who subsequently ruled in Wales, and the old genealogies mark the event by suddenly substituting princes with Welsh names for princes with Latin names. The rude Keltic tribes of Strathclyde came to the assistance of their more cultured brethren in the south, checking the further progress of the foreigner and imposing their domination and language upon the older population of the country. It is probable that the disappearance of Latin was further aided not only by the destruction of the cities and the increasing barbarism of the people, but also by the settlement of Irish colonies, more especially in South Wales. At all events the ruin of cities like Caerleon and Caerwent must be ascribed to Irish marauders. We can now explain why it is not only that Wales speaks Welsh and not Latin, but also why a part of the country, which, according to Professor Rhŷs, was mostly peopled by Gaelic tribes before the Roman conquest, speaks Cymric and not Gaelic. As for Cornish its affinities are with Breton, and since history knows of frequent intercourse between Cornwall and Brittany in the age that followed the departure of the Romans we may see in the Cornish dialect the traces of Breton influence.

The arrival of "Cunedda's men" and the re-Keltisation of Wales lead me to the second line of evidence to which I have alluded above. The bearing of the costume of a people upon their ethnography is a matter which has been much neglected. But there are few things about which a population—more especially in an early stage of society—is so conservative as in the matter of dress. When we find the Egyptian sculptor representing the Hittites of the warm plains of Palestine clad in the snow-shoes of the mountaineer we are justified in concluding that they must have descended from the ranges of the Taurus, where the bulk of

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their brethren continued to live, just as the similar shoes with turned-up ends which the Turks have introduced among the upper classes of Syria, Egypt, and northern Africa point to the northern origin of the Turks themselves. Such shoes are utterly unsuited for walking in over a country covered with grass, brushwood, or even stones; they are on the contrary admirably adapted for walking on snow.

Now the dress of Keltic Gaul and of southern Britain also when the Romans first became acquainted with it was the same as the dress which "linguistic palæontology" teaches us had been worn by the primitive Aryans in their first home. One of its chief constituents were the *braccæ*, or trousers, which accordingly became to the Roman the symbol of the barbarian. We learn, however, from sculptures and other works of art that before the retirement of the Romans from the northern part of Europe they had adopted this article of clothing, at all events during the winter months. That the natives of southern Britain continued to wear it after their separation from Rome is clear from a statement of Gildas ("Hist.," 19) in which he refers in no flattering terms to the kilt of the Pict and the Scot. Yet from within a century after the time of Gildas there are indications that the northern kilt which he regards as so strange and curious had become the common garb of Wales. When we come down to the twelfth century we find that it is the national costume. Giraldus Cambrensis gives us a description of the Welsh dress in his own time, from which we learn that it consisted simply of a tunic and plaid. It was not until the age of the Tudors, according to Lluyd, the Welsh historian of the reign of Elizabeth, that the Welsh exchanged their own for the English dress.[1] The Welsh who served in the army of Edward II at Bannockburn were remarked even by the Lowland Scotch for the scantiness of their attire,[2] and we have evidence that it was the same a century later.[3] If we turn to Ireland we find that in the days of Spenser, and later, the national costume of the Irish was the same as that of the Welsh and the Highland Scotch. The knee-breeches and sword-coat which characterise the typical Irishman in the comic papers are survivals of the dress worn by the English at the time when it was adopted in Ireland.

The Highland dress, therefore, was once worn not only in the Scotch Highlands and in Ireland, but also in Wales. It characterised the Keltic parts of Britain with the exception of Cornwall and Devonshire. Yet we have seen that up to the middle of the sixth century, at the period when Latin was still the language of the fellow-countrymen of Gildas, and when "Cunedda's men" had not as yet imposed their domination upon Wales, the old Keltic dress with trousers must have been the one in common use. Now we can easily understand how a dress of the kind could

[1] "The Breviary of Brytaine," Twyne's translation, page 35 (ed. 1573).

[2] Barbour's "Bruce," ix, pages 600–603.

[3] *See* Jones' "History of the County of Brecknock, vol. i, page 283; *comp.* "Archæologia Cambrensis," 5th series, No. 7 (1885), page 227.

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have been replaced by the kilt in warm countries like Italy and Greece; what is not easily conceivable is that such a dress could have been replaced by the kilt in the cold regions of the north. In warm climates a lighter form of clothing is readily adopted; in cold climates the converse is the case.

I see, consequently, but one solution of the problem before us. On the one hand, there was the distinctive Keltic dress of the Roman age, which was the same as the dress of the primitive Aryan, and was worn alike by the Kelts of Gaul and Britain and the Teutons of Germany; on the other hand, there was the scantier and colder dress which originally characterised the coldest part of Britain, and subsequently mediæval Wales also. Must we not infer, in the first place, that the aboriginal population of Caledonia and Ireland was not Keltic—or at least not Aryan Keltic—and, secondly, that the dominant class in Wales after the sixth century came from that northern portion of the island where the kilt was worn? Both inferences, at all events, agree with the conclusions which ethnologists and historians have arrived at upon other grounds.

Perhaps what I have been saying will show that even a subject like the history of dress will yield more results to ethnological study than is usually supposed. It will be another illustration of the fact that the student of humanity cannot afford to neglect any department of research which has to do with the life of man, however widely removed it may seem to be from science and scientific methods of enquiry. "Homo sum; humani nihil a me alienum puto."

On *the* Notes *sounded by* Mr. Galton's Whistles *for testing the limit of* Audibility *of* Sound.

By W. N. Shaw, Esq., M.A.

In order to test the limit of audibility of sound, an adjustable whistle is made by the Cambridge Scientific Instrument Company on the plan designed by Mr. Galton some 10 years ago. It is a whistle with a very narrow pipe; the length of the pipe can be adjusted by means of a piston, a wire ·73 mm. in diameter, sliding in the pipe. This sliding wire carries a disc, and the frame to which the whistle is attached and in which the outer end of the wire piston rests, carries a parallel disc. As the piston is pushed in, these two discs approach each other. Their distance apart can be measured by inserting a graduated wedge, and gives at once the length of the pipe of the whistle. The whistle is blown by compressing a small india-rubber bladder attached to it. The apparatus is used to determine the pitch of the highest note audible by a particular person in the following manner. The piston is adjusted till the vibration produced by the whistle is just inaudible; the distance between the discs is then read, giving a length of whistle

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pipe l. From this observation, the pitch of the corresponding note can be calculated thus:—disregarding all corrections, the wave length of the note λ in free air should be $4\,l$; and if v be the velocity of sound in air (at the temperature of observation) and N the vibration number or pitch of the note—

$$N = \frac{v}{\lambda} = \frac{v}{4\,l}.$$

The corrections which have been disregarded in assuming this simple formula arise from the following considerations:—

(1.) The velocity of sound in the narrow pipe of the whistle is not the same as in free air, so that v cannot fairly be substituted from the known value of the velocity of sound in air. The correction on this account cannot be accurately arrived at, for the change in the velocity, while it increases with a diminishing diameter of pipe is less for high notes than for low ones, and the relation between the value of the correction and the pitch—a matter of great importance when the pitch is very high—is not well understood (see Wüllner "Experimental-Physik," vol. 1, p. 799).

(2.) Four times the measured length of an ordinary organ pipe is not found to correspond to the true wave length of the note produced: the formula in such cases is more accurately—

$$N = \frac{v}{4\,(l + x)},$$

where x is to be regarded as a correction to the observed length of pipe.

This gives satisfactory results with organ pipes. The value of x for a pipe with a width of 40 mm. and a length about seven times as great, was determined by Wertheim to be 1·5 times the diameter, and the correction in other cases roughly corresponded. I know of no observations with very narrow pipes and high notes from which the corresponding correction can be drawn.

This correction to the length of the pipe may moreover be affected by the pressure of the air by which the whistle is blown. The whistles require a pressure of some 20 cm. of water to make them speak, so that there is a possibility of variation much greater than that which occurs with an ordinary organ pipe requiring a very small air-pressure. The effect of increasing the pressure, as will be shewn below, is to raise the pitch of the note, or, in other words, to diminish the value of the correction x.

The acoustical properties of such whistles seemed, therefore, to require some independent investigation; and, at the request of Mr. H. Darwin, I arranged an experimental investigation of three whistles, which was carried out for me by Mr. F. M. Turner of Trinity College. What was required was some method of determining the pitch of the note of the whistle which should be independent of the calculation I have discussed. For this purpose it appeared that an experimental method suggested by Lord Ray-

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leigh ("Phil. Mag." [5], vii, p. 153) would be particularly suitable. The method depends upon the behaviour of a "sensitive flame," when a high note is sounded. The coal-gas flame issuing from a pin-hole burner becomes "sensitive" if the gas is supplied at a sufficiently high pressure (say 10 inches of water, the ordinary gas supply pressure being about 1 inch), so that a flame about 18 inches long is obtained just on the point of flaring. A high note, such as those caused by rattling a bunch of keys, or a hiss, makes the flame flare, and it continues to flare as long as the note sounds, recovering its steadiness when the sound ceases.

If a continuous high note is made by blowing a whistle or "bird-call" by means of a weighted gas bag, and at some distance from the whistle a plane vertical surface is erected, so that the waves of sound are reflected normally, the interference of the reflected waves with the subsequent incident waves produces a series of nodes with intervening loops in the space between the whistle and the wall. Lord Rayleigh has shewn that if the sensitive flame is moved into various positions in this space, the whistle will flare everywhere except at the nodes, and there the flame will be, comparatively speaking, undisturbed. The position of the nodes can therefore be identified by means of the sensitive flame, and, as the distance between consecutive nodes is half a wave-length, the wave-length of the note in free air is easily deduced from observation of the internodal distance; if λ be the wave-length so obtained, N the vibration frequency of the note, and v the velocity of sound, which may be quite safely assumed as known, $N = \frac{v}{\lambda}$, and no correction is required.

A number of observations were taken by Mr. Turner on this plan with three whistles, denoted *A*, *B*, and *C* respectively, the gas for the sensitive flame was supplied from a gas-holder that could be loaded at pleasure, and a gas-bag furnished air to the whistles. A plate of glass served as a reflecting wall. The pressures of the air and gas were measured by means of U tubes containing water.

This method proved to be applicable to notes with a pipe-length between 3 mm. and 7·6 mm. The practical reasons against its use for other notes are as follows:—A particular flame is not sensitive for all high notes within the range of a whistle at the same time, but the gas pressure can always be adjusted and a flame obtained which flares when a given note is blown on the whistle, within the range of 9 mm. pipe length to half mm. or less, far beyond the limit of audibility.[1] My own ears cannot appreciate a note with a pipe-length less than 3·7 mm. Mr.

[1] Under favourable conditions the behaviour of the sensitive flame when the whistle is blown as in actual practice, by squeezing the india-rubber bladder, is very striking. As the length of the pipe is gradually shortened, the flame gives a short flare for each puff of air until the piston is pushed quite home, when no flare occurs. It would, however, not be safe to make any inference as to the pitch of the note for lengths less than half a millimetre.

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Turner's limit is 3·8, so that the flame responds to continuous sounds at least three octaves above the highest sounds commonly audible. But it is not an easy matter to get the reflexion nodes well marked as points of minimum flaring; the pressure of the gas requires careful adjustment in any case, and we were unable with any adjustment to get nodes for pipe lengths greater than 7·6 mm. or less than 3 mm. This range embraces notes from 8,000 to 21,000 complete vibrations per second. I cannot safely assign any reason for our inability to get nodes for higher pitches; it may be due to the comparatively large area of the section of the flame at its sensitive part, or to the continuous effect of disturbing vibrations which, being inaudible, cannot otherwise be perceived; but even as the case stands we have measured the nodal distances of notes a major third higher than anything that either of us could hear, and it is possible that with other flames a higher limit may be reached. For wave-lengths longer than 34 mm. the flame had to be made so sensitive that it was unstable and no satisfactory observations could be made.

In each determination of an internodal distance the positions of a large number of points of minimum flaring at different distances from the reflecting wall were read many times over and a mean result deduced.

The following specimen will exemplify the agreement between the observations, and show how the mean value is deduced.

WHISTLE *A*.

Length of whistle 7·1 mm.

Pressure of air blowing the whistle = 26·4 cm. of water.

No. of the node.	Observations of distance of nodes from the wall in mm.					Mean distance.	Calculated half wave-length.
1	18·2	18·4	18·2			18·3	18·3
2	33·1	34·0	32·7	34·8		33·6	16·8
3	48·0	50·0	51·7	49·0		49·7	16·6
4	68·5	66·0	68·0	64·5	65·1	66·4	16·6
5	83·2	81·0	82·2	83·8		82·5	16·5
6	101·0	99·3				100·2	16·7
7	116·3	119·4	118·0			117·9	16·6

In this and some other cases the length calculated from the first node is far greater than that from any of the others. This may be due to the heating effect of the flame, which cannot well be allowed for. We thought better therefore to leave out the first position in all cases. The mean result of this series then will be—

Half wave-length=16·63 mm.

All the mean results obtained are given in the following table :—

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TABLE OF RESULTS.

Whistle used.	Pressure of air in cm. of water.	Length of whistle in mm.	Quarter wave-length in free air in mm.
A	16·7	3·0	3·96
„	16·9	3·3	4·15
„	27 5	5·0	6·65
„	26·0	„	6·53
„	19·3	„	7·40
B	32·8	„	6·30
„	21·4	„	7·05
C	29·1	„	6·32
„	22·8	„	6·50
A	26·4	7·1	8·32
B	24·5	„	8·22
„	15·9	„	8·77
A	27·0	7·6	8·55

It appears from these results (1) that the different whistles give practically the same note at the same pressure; (2) That the note sounded varies considerably with the pressure, the values at 5 mm. differing by about a "whole tone" for a variation of pressure between 19·3 and 32·8 cm. of water; (3) That the true wave-length is greater than four times the length of the pipe. It is difficult to suggest a general law which will meet the case, in consequence of the variation of the note with the pressure. The pressure of the air in actual practice with the whistle is obtained by squeezing the little india-rubber bladder attached to the whistle. The pressure is variable, but the ear recognises only one note. This may be connected with a fact that we observed in connection with them, namely, that the whistles required a certain definite pressure, different for each, in order to produce a clear note, if the pressure was not correct the sound produced might be called a hiss, yet it gave good nodes. It appears that, speaking very roughly, the correction to be applied to the observed length of pipe in order to obtain the the true quarter wave-length for the higher pressures does not differ much from 1 mm., and is therefore nearly equal to 1·5 × diameter of pipe, the correction found by Wertheim to be applicable in the case of organ pipes of corresponding shape.

NOTE *on the* DIEYERIE TRIBE *of* SOUTH AUSTRALIA.

By Mr. SAMUEL GASON. (Communicated by J. G. FRAZER, M.A.)

Mr. Frazer writes as follows:—

I enclose a copy of a letter received by me from Mr. Samuel Gason in reply to some enquiries which I had addressed to him concerning the Dieyerie tribe of aborigines, South Australia. Mr. Gason, in the course of his duties as police trooper, has been for many years familiar with the tribe in question, whose manners and

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customs he has described in a very valuable little work, included in the volume, "Native Tribes of South Australia." The following letter supplements on some important points the information contained in that work. In particular it shows that the Dieyerie belongs to that rare class of cases, intermediate between mother kin and father kin, where the sons take their totem from the father and the daughters from the mother.

This is not, as I hope to point out elsewhere, to be confounded with the sex totem, of which examples are to be found in Australia, but (so far as I know) nowhere else. In view of Mr. Gason's letter the statement of Mr. Howitt ("Journ. Anthrop. Inst.," XIII, p. 457) that descent in the Dieyerie tribe is uterine, needs correction.

The following is Mr. Gason's letter, dated from Beltana, South Australia, March 6th, 1887:—

I beg to acknowledge the receipt of your letter, and to send the following remarks in reply to your inquiries, *re* branches of the aborigine Dieyerie tribe of South Australia.

1st. As to whether children of the father inherit the father's branch or class name, I reply yes, the sons take the father's class, the daughters the mother's class, *e.g.*, if a *dog* (being the *man*) marries a *rat* (being the *woman*) the sons of the issue would be dogs, the daughters of the issue would be rats.

2ndly. As to whether the father is the head of the family, I say most certainly.

3rdly. As to whether the father eats of his children at the burial ceremony, my reply is that the father does not eat of his offspring; the reason assigned is that, being the head of the family, he has sufficient command, and being a man (not weak like a woman) he can resist the deep grief occasioned by the loss of his child, and not be perpetually crying, causing a nuisance to the camp and tribe; whereas, a mother and other female relatives are compelled to eat of their offspring and dear departed relatives, for by so doing, they are supposed to have a presence of their departed in their liver (they feel from their liver, not from their heart as we do). The man will eat of his brother, his uncle, his cousin, or dear friend, but not of his father, nor his grandfather, nor his offspring.

4thly. The members of each class-name do not pay any particular respect to their branch, further than each class thinks that they are of the oldest families. They eat the animals or plants of which they derive their class names.

5thly. On all deaths, either from natural causes or otherwise, an inquiry or inquest is held immediately before burial, and in case of the departed being a person of note or influence, the result of the inquiry is a verdict of murder against some person or persons of the same tribe or of the neighbouring tribe, even if the deceased died from natural causes, they having a superstitious belief that any man who is a *Koonkie* (doctor) has the power to cause any person's death by sickness at any distance by the use of a human bone, carried out by a superstitious charm.

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Fourth Annual Report of the Bureau of Ethnology—Smithsonian Institution, Washington, 1886.

The Fourth Annual Report of the Bureau of Ethnology is not quite as large as its predecessors, neither is it, perhaps, quite as full of interest, although the papers are of high scientific value, from the systematic manner in which the work of exploration has been carried out, and the large amount of material collected and classified.

The recorded field-work consists of explorations among the mounds of the Mississippi Valley, in the course of which four thousand one hundred specimens were added to the National Museum, including a large collection of pottery, skulls, stone, copper, and shell implements and ornaments, also some articles shewing contact with Europeans, such as hammered iron, bracelets, brooches, and crosses of silver, and a hog's tooth. The full report of these explorations will be of great utility to future workers in this extensive field; but the explorations carried on by Mr. James Stevenson, among the cliff dwellings in the cañons of North Mexico, are of still greater interest, for these cliff dwellings are an extraordinary development of the primitive cave dwellings of early man, consisting of huge chambers tunnelled into the solid rock, in some cases 300 feet above the bed of the cañon. Some of these village chambers are of enormous dimensions, one being described as 1,500 feet from side to side, and about half that space from the back to the edge of the cliff; calculated to have been the home of between a thousand and fifteen hundred persons. The floor of this cave, probably a natural cavity enlarged, was studded with dwellings built of square stones laid in mortar, and houses three stories high are found, filling up spaces between rocky projections, whilst frequently houses have been built jutting out from the cliff, reminding one of swallows' nests on a large scale.

The most singular part of these extraordinary dwellings is, that they appear to have been constructed entirely by users of stone implements; but who, judging from their works, must have attained to a civilisation superior to that of the neolithic peoples of Europe, for they had much artistic skill, the dwellings being painted in various colours, generally in bands, but also in a pattern resembling the Greek fret, and with many curious designs of unknown meaning introduced. They seem, also, to have cultivated Indian corn, and to have made garments and matting from the fibre of the Yucca; they also wore finely woven sandals of peculiar pattern, and skeletons have been found, buried in a sitting posture, with the flesh and skin dried to the hardness of stone.

Mr. Frank Cushing continues his interesting researches among the Zuñis, and Mr. Victor Mindeleff is prosecuting the same work among the Moki, and we may hope soon to see the result of their investigations.

Good work has also been done in classifying the languages of

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many of the Indian tribes, by the Rev. Owen Dorsey, Mrs. Erminie Smith, and others, and it is probable that through the names of animals, trees, &c., we may, in time, obtain a knowledge of the migrations and affinities of the various tribes.

The most important paper in the present volume is that by Colonel Garrick Mallery, U.S.A., on the Pictographs of the North American Indians, which is very profusely illustrated, and includes rock sculptures as well as paintings. It is of especial interest to find that a certain geographical area can be assigned to each form of descriptive writing, or hieroglyphs, as they may be called. Colonel Mallery supposes that American pictographs are: "1st. Mnemonic, embracing order of songs, traditions, treaties, war, and time. 2nd. Notifications, comprising notice of departure and direction, of condition, warning and guidance, geographic features, claim or demand, messages and communications, and record of expeditions. 3rd. Totemic: this embraces tribal, gentile, clan, and personal designations, insignia and tokens of authority, personal names, property marks, status of individuals, and signs of particular achievements. 4th. Religious, comprising mythic personages, shamanism, dances and ceremonies, mortuary practices, grave posts, charms and fetiches. 5th. Customs and habits. 6th. Tribal history. 7th. Biographic, in which are examples giving continuous record of events in a life, and other cases of particular exploits and occurrences." From this it will be seen that the pictographs of a tribe are, in fact, the history of that tribe, or rather of particular events relating to the chiefs of the tribe, although in some cases they have a symbolic, or religious meaning.

The next paper is on the "Pottery of the Ancient Pueblos," by William H. Holmes, followed by another on the "Origin and Development of Form and Ornament in Ceramic Art," by the same author. In these we are introduced to many quaint and curious forms in pottery, and to some very beautiful ornamental designs, showing that the ancient Americans had attained to greater perfection in this art than even the early Greeks and Etruscans, although the designs are chiefly geometrical.

The concluding paper in this volume is one by Mr. Frank Cushing on "A Study of Pueblo Pottery, as illustrative of Zuñi Culture Growth," which treats of the evolution of form both in architecture and pottery, through necessity or convenience. With regard to architecture, Mr. Cushing supposes the rectangular form to have been developed from the circular, which was the older, originating from the tent; whilst he believes pottery to have been anticipated by basketry.

These papers should be studied carefully by those who are interested in the ancient pottery of Europe, for they would find in them many suggestions for future investigations.

A. W. BUCKLAND.

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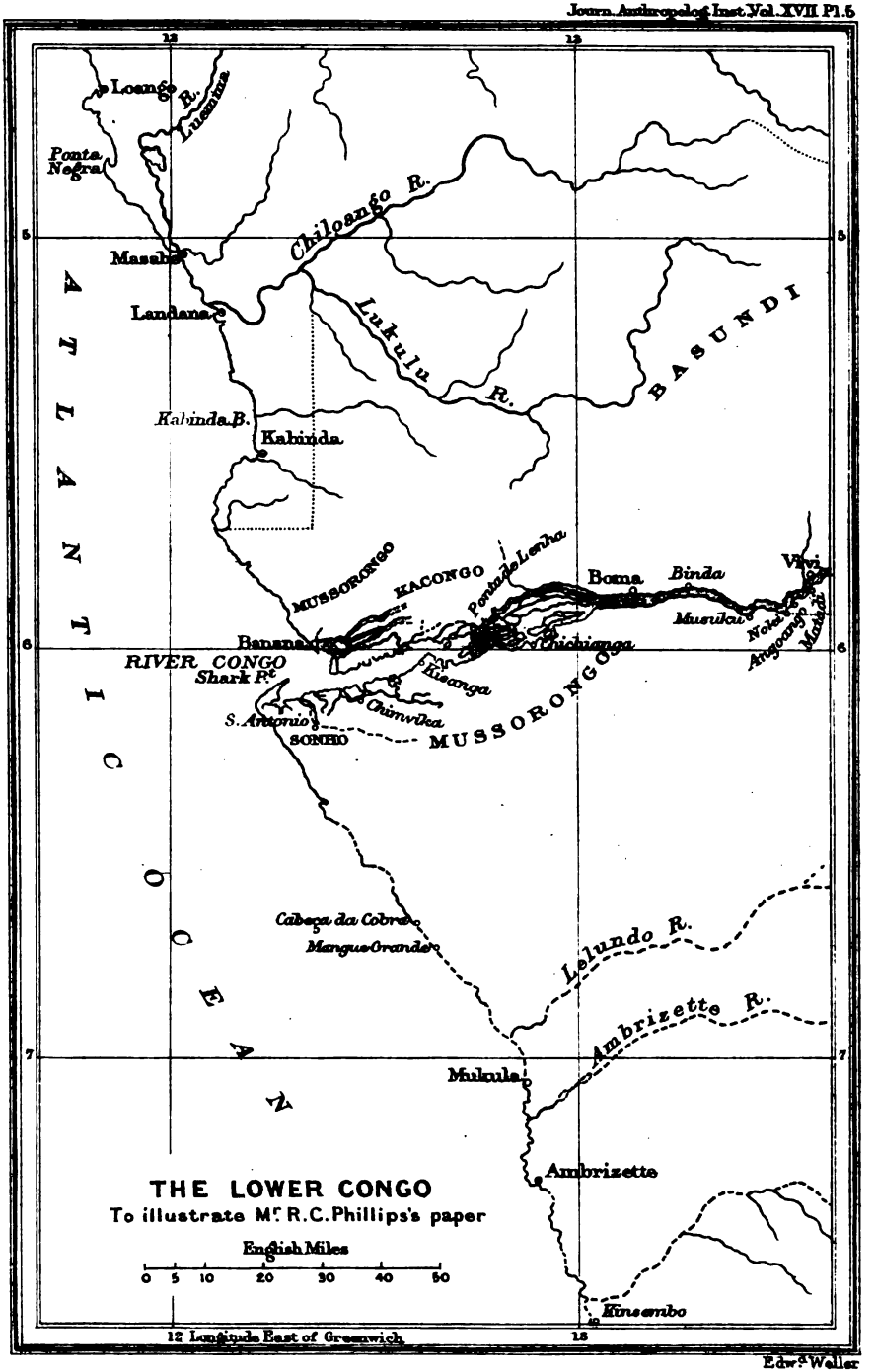

Edwd Weller

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THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

JUNE 28TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of WILLIAM GOWLAND, Esq., F.C.S., A.R.S.M., of the Imperial Mint, Osaka, Japan, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the SECRETARY-GENERAL OF THE INTERNATIONAL CONGRESS OF ANTHROPOLOGY AND PRE-HISTORIC ARCHÆOLOGY.—Compte-rendu de la huitième Session, Budapest, 1876. Second Volume, Parts 1, 2.

From the INSTITUTION.—Journal of the Royal United Service Institution. No. 139.

From the SOCIETY.—Journal of the Society of Arts. Nos. 1804, 1805.

—— Proceedings of the Royal Society. No. 255.

—— The Scientific Proceedings of the Royal Dublin Society. Vol. v (N.S.), Parts 3–6.

—— The Scientific Transactions of the Royal Dublin Society. Parts xi–xiii.

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From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscou. 1886. No. 3.
—— Bulletin de la Société de Borda, Dax. 1887. Part 3.
From the EDITOR.—Nature. Nos. 920, 921.
—— Science. No. 227.
—— The Photographic Times. Nos. 299, 300.
—— Revue d'Ethnographie. 1887. No. 1.

LIEUT.-GENERAL PITT-RIVERS exhibited a series of very fine models illustrating his recent excavations in Cranborne Chase; and read the following paper:—

On an ANCIENT BRITISH SETTLEMENT EXCAVATED NEAR RUSHMORE, SALISBURY.

By Lieut.-General PITT-RIVERS, D.C.L., F.R.S., F.S.A., F.G.S., Vice-President Anthrop. Inst.

IN my privately-printed 4to volume of "Excavations in Cranborne Chase," vol. I, relating to the excavations in the village on Woodcuts Common,[1] I have described everything found there with the utmost detail, avoiding theory as much as possible, and desiring to make it a work of reference that could be relied upon for the forms of art of that period found in this neighbourhood. In collecting evidence from archæological works professing to be descriptive, I have often experienced the inconvenience of having to wade through a mass of speculative matter in order to pick out the facts, and I have endeavoured to avoid this error by tabulating the materials, and placing the illustrations of the objects in juxtaposition with the descriptions of them. This course, no doubt, detracts from the interest of the volume to the general public, but adds to its value to the working anthropologist and archæologist. But, in my Presidential Address to the meeting of the Archæological Institute at Salisbury, in 1887, I have enlarged a little, and shown the bearing of this discovery upon general questions.

The Romanised Britons have not, I think, been studied by anthropologists so much as they deserve. Whilst the stone and bronze age people have engrossed our attention, and we have little difficulty in speaking of their physical peculiarities or their arts, the Britons, as they were left after the withdrawal of

[1] "Excavations in Cranborne Chase, near Rushmore, on the borders of Dorset and Wilts." By Lieutenant-General Pitt-Rivers, D.C.L., F.R.S., Vol. I. Printed privately, 1887. A copy of this work has been presented by the author to the Library of the Institute.

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the Roman Legions, remain a mystery to us, and afford scope for the widest divergence of opinion. Yet their influence upon the existing population of the country must have been far greater than that of the generations which preceded them. Although the late Celtic art and ornamentation, found sporadically in this country before the Roman Conquest, shows evidence of much taste and refinement, yet the three centuries of Roman occupation must be considered virtually to mark the first stages of civilisation in England, and the Briton before and after that period must have been, in many respects, a very different being. Whilst some have represented him as utterly degenerate after the Romans left, and to have been almost exterminated by the Saxons in the central and eastern part of the country, recent investigation has tended to modify this opinion considerably. There can be no doubt that we had a great and noble inheritance from Rome, and that much of it must have been passed on to us by the Britons who succeeded in inoculating their rude Saxon conquerors with what they had learnt from their old masters. It is even now believed by some that the language of the Romanised Britons was entirely Latin, and that the Celtic speech had to be reintroduced into Wales by tribes that had lived beyond the area of Roman influence in the north.

Much of this ignorance of the condition of the Britons at this time, arises, no doubt, from the difficulty of identifying their graves. A stone or a bronze age grave can be easily determined by the associated relics, but the Romans introduced so many auxiliaries and colonists from different parts of the world, that a skeleton found in association with Roman relics may be that of a native of any part of that wide region over which the Roman dominion extended. This gives additional interest to the study of the remains of people who inhabited the Wiltshire Downs in the western part of the country, in places that are remote from the Roman centres, in high and comparatively barren spots to which the aborigines are likely to have been driven by their conquerors, where the probability of finding the remains of the genuine Briton is much greater; and when we find in these places skeletons buried in pits in the villages which they inhabited, surrounded by the relics that they used in life, and the remains of their habitations, this serves still more surely to identify them as Britons; for it is unlikely that the Romans themselves, or their allies, should have paid so little attention to the remains of their dead as to throw them into pits with refuse, without any of the signs of decent burial.

Moreover, we find that those who were buried with any

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signs of care were crouched up after the ancient manner of the Britons, but few having been found extended, and of these some of them buried beneath the little ramparts of the villages in such a way as to show that the latter had been thrown over them, and that the direction of the bodies was given to them by the lines of the ramparts, and the drains in which they were also found interred. All this proves them to be the remains of a subject rather than a dominant people, and the associated relics serve also to fix their age without difficulty. The pottery, of which immense quantities were found in fragments both in the pits and beneath the surface, some of it in a condition to be restored, was mostly British, and the pots resembled those found in settlements of the Roman age found elsewhere, especially in Dorsetshire. But with it were fragments of Samian of Roman manufacture, and the position of these undoubtedly Roman fragments showed that it was in use during the greater part, if not the whole, of the time of the occupation of the village. The Roman coins speak to the same effect, being of all dates from Caligula, A.D. 37, to Magnentius, A.D. 353, and they were continuous during the whole period with one considerable gap of fifty years extending from Clodius Albinus, A.D. 193, to Trebonianus Gallus, A.D. 253. No doubt many of the earlier coins were used up to a late date, and, therefore, afford no actual evidence of the duration of the period of occupation; but one special find, consisting of the remains of a box, the wood of which was found adhering to bronze ornaments and dolphin-shaped handles, appeared to have contained coins dating from Claudius, A.D. 41, to Claudius Gothicus, A.D. 270, all of which, if forming the contents of the box, must have been in use at the same time. The village also produced four British silver uninscribed coins of the type which appears, by Mr. Evans' work, to have been prevalent in this neighbourhood. These British coins may, probably, have been in use for some time after Roman occupation, but it is hardly likely they should have been employed up to the latest period, so that it seems probable the village must have been occupied early, as well as late, during the Roman era. Other circumstances point to the same conclusion. The little banks surrounding the village and its outworks, showed evidence of having been altered, and the excavations proved that, in some places, banks had been raised over spots where ditches previously existed. Such changes need not have taken centuries to develop themselves, but they prove continuity of occupation. The pits, of which ninety-five were found, were of slightly different shapes, some, about 11 feet deep, were in the form of a truncated cone, slightly larger at bottom than top, with the sides smoothly

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cut in the chalk, but in no case revetted. Others were quite cylindrical, and not more than 4 feet deep. Others had a plan in the form of two or three circles cutting into each other, suggesting side chambers or cupboards, yet suggesting also the possibility of one pit having been cut and filled up again before the others were made; for it is not evident why the circular form should have been so strictly adhered to in the case of side chambers or cupboards. The depths also of these united pits did not in many cases coincide. They were all filled to the top with earth and refuse, including fragments of pottery and the remains of domesticated animals. In some places these collections of refuse looked as if it had been thrown in in a heap, but in other parts it was interspersed here and there as if it had been introduced in the earth with which the pits were filled up to the top so completely as to show no trace upon the surface before the excavations commenced. With the bones a few fragments of human skeletons were found occasionally, besides the entire skeletons of human beings which were thrown into some of the pits. Only one Roman coin was found in a pit, all the rest having been found whilst trenching the surface, which suggests the possibility of most of the pits having been filled up before coins came into general use in the village. One quarter of the village contained relics of superior quality to the other quarters. Here flat pieces of painted plaster showed that they occupied square shaped rooms ornamented in the interior, whilst in other parts of the village the fragments of clay found with the impression of interlaced sticks upon them, showed that they lived in houses made of dab and wattle similar to those which I have elsewhere described as having been found at Mount Caburn, near Lewes, and which were shown to be of the late Celtic period. In the rich quarter also were quantities of iron nails, which denoted that cut timber work was used in the houses, and these nails were deficient in the pits generally. Tiles of Purbeck shale, with nail holes to fasten them by, were also found more frequently in the rich quarter than elsewhere, and terra cotta "tegulæ" were also found there, but only in fragments and used as pavements, for which purpose these tiles were frequently employed elsewhere. The absence of "imbrices" which are a necessary adjunct in the formation of a Roman tiled roof confirms the opinion that the roofs in the Romano-British village were not tiled in this way; although the fragments of the tiles showed that they had certainly been originally constructed for roofing; their use for a secondhand purpose conveys the impression of poverty, although too much stress must not be laid upon the circumstance. In forming a comparison between the relics found in the pits and those found just beneath the sur-

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face in places where there were no pits, and on the surface over the pits, what Mr. Pengelly has observed is perfectly true, that the surface must have been occupied at the same time as the the earliest pits, and must, therefore, contain some of the relics earliest dropped about in the village. But if we are to believe that the pits were filled up successively as they were abandoned and others dug to replace them, it is evident that those early filled up would no longer continue to be the receptacles for objects in use during the later period of occupation, but would contain only the earliest things, whilst the surface would contain the things of all the periods. There is an object, therefore, in comparing the relative numbers of the better class of things found in the pits and on the surface. This has been done with great care, with the result that a much larger quantity of good things, and things of decidedly Roman construction, have been found on the surface than in the pits, although there is no certain evidence derivable from this source that the village was ever occupied before Roman times. On the other hand things of commoner use were more abundant in the pits. This may be accounted for partly by supposing that the village grew in wealth as it went on, and partly by supposing that the better things were more generally used in the rich quarter where timber built houses existed, and where the pits were scarcer, than in the poorer quarter where pits were more abundant. The value of the evidence bearing upon these points can only be understood by carefully studying the relic tables given in my volume and the deductions that are there made from them. It is always a mistake to expect positive and conclusive evidence from excavations of this nature; at the best, results can only be arrived at by a balance of probabilities and by recording all the finds with the utmost care.

The use of the pits cannot be determined with certainty, but there is reason to suppose that the majority of them were made to contain refuse, and that the habitations were on the surface near them. They resemble the pits found in British settlements of the late Celtic period such as Mount Caburn; so that the interior economy of the British villages must have remained unchanged in Roman times.

By careful measurement of all the animal bones and comparison with test animals, the height and length of which were measured before being killed, it appears that all the domesticated animals were small, except the pig, which was of nearly the same size as our own. The horse did not exceed 11 to 12 hands, and resembled the Exmoor pony in form. The short-horned ox, *Bos longifrons*, was about the size of an Alderney cow; the sheep was small and long-legged, resembling those now found only on

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the Island of St. Kilda. The dog was of all sizes, from that of a large mastiff or retriever to a small terrier, and one bone of a Dachshound was also found. Tables of measurement and comparison with the test animals will, I hope, be given in my next volume, on the Excavations in the village of Rotherley, now in course of preparation. Professor Rolleston was paying attention to the subject of ancient domesticated breeds at the time of his death, and I hope to be able to lay the foundation for a careful study of the subject in my next volume. The horse, as well as the ox and sheep, was used for food. It is not certain that the dog was so used, though the number of detached bones of that animal found with the others rather implies that such was the case. On the other hand, one entire skeleton of a dog was found buried with a human skeleton in a grave. Roe deer was used for food in small quantities but not the red deer, although its horns were used for the handles of implements. No horns of fallow deer were found. Oysters were found in large numbers, as is usually the case in all villages of the Roman age. Three thousand and twenty-five of these shells were found in the village, but I omitted to count the number of upper and lower valves, until a large number had been destroyed. Of the one thousand eight hundred and seventy-three that then remained I found that nine hundred and sixteen were tops and nine hundred and fifty-seven bottoms, from which it is evident that they had been imported entire; the upper valves are more liable to destruction than the lower ones. No other mollusks were found, nor were land shells found in sufficient number to allow it to be supposed that snails were eaten. No specimen of *Helix pomatia* was discovered. Although it was evidently an outlying agricultural village, the people were not without refinement as attested by a number of bronze finger rings of Roman manufacture, set with glass and adapted to fingers of small size. The numerous bronze fibulæ found were all of Roman type, and two mosaic brooches of blue, red, and white pattern, were of the finest workmanship. As a rule, the pottery was of rude manufacture, but with flat bottoms adapted to stand on tables. Some of the vessels had handles, but many of them were provided with loops for suspension, somewhat similar to those still used by Dorsetshire labourers in the fields, a form that is not uncommon amongst Roman remains in this neighbourhood. It appeared to be wheel-turned, but subsequently smoothed over with striæ running in different directions so as to obliterate the marks of the wheel. One perfect Samian bowl with figures in relief was found in fragments and restored. Scarcely any fragments of the coarse British pottery, having large grains of quartz or shell in its composition, were found during the excavations.

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One of the most remarkable characteristics of the village was the extensive arrangements that had been made for drainage. Ditches 3 to 4 feet deep surrounded the village, and from these other deep drains led down hill and along the sides of the roads, leading to and from the village, implying probably a much greater rainfall than is experienced at the present time. The drains consisted of open ditches, no trace of conduits or faggots having been found in them.

The same conclusion as to the rainfall is borne out by the depth of the wells, two of which were found in the village, one 136 and the other 188 feet deep. At the bottom of the deeper one, the iron bands and handle of the Roman bucket were found, shewing that it had been used to obtain water, although it is now quite dry, and a diagram given in my volume showing the depths of the existing wells on the hill in comparison with the Roman ones, brings to light the fact that water was obtained in Roman times at a higher level than is the case at present. No doubt the destruction of the ancient forests and the drainage of the land has brought about this change, and the description of Britain by Pytheas as a "land of clouds and rain," must have well applied to the condition of the country at the time we are speaking of. Associated with the climate also must be considered several hypocausts found in the village. The use of some of them is doubtful, but one appears clearly to resemble a British copy of a Roman flue used for warming a room, made with flags of Purbeck shale instead of tiles, and shewing that the owner of the house must have become thoroughly imbued with Roman ideas of comfort. In one of these hypocausts a skeleton was found, which had been interred at the time it was filled up with earth. In one of the pits, the skeleton of a child about 12 years of age was found to have been killed by a sword cut on the back of the head, and it was thrown into the pit with two adults. Twenty-two skeletons of infants were also discovered in various parts of the excavations, the majority of which were *new-born*, reminding us of the Roman custom of burying young children under the eaves of the houses. By measuring several samples of ancient wheat found in the pits, it was found that the number of grains to the cubic inch, was the same as in wheat now grown at the same level. This differs from British and pre-Roman grain, which I found higher up on the hill, which shewed nearly twice as many grains to the cubic inch as wheat now grown near the same spot, from which it appears that the influence of Roman methods of husbandry had told upon the quality of the grain produced at the time of the occupation of this village.

On the feet of two of the skeletons iron hobnails, Roman

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fashion, were found, and on a third a quantity of similar nails covered the shin bones, some of which were corroded together at the heads, showing that probably they had served to arm leather greaves, with which the lower part of the legs had been covered.

This being the condition of the remains, and the probability of the inhabitants of the village being Britons of the Roman era being well attested, it is interesting to consider the physical peculiarities of the skeletons found thrown into the pits or otherwise buried within the village. All the skulls that could be restored have been carefully drawn in my volume, and the measurements of the skulls and of the bones of the skeletons are attached to the plates. The first thing that strikes one is their exceedingly small stature, 3½ inches lower than the estimated stature of small long-barrow people of this district, and this is the more remarkable because the only two bronze age skeletons that I have found in this neighbourhood are of the usual large stature of the bronze age folk. And the Saxons also which I found in the neighbouring cemetery at Winkelbury were of the usual comparatively large size of that people. Of fifteen skeletons found in the village of Woodcuts, the stature of thirteen could be estimated by the long bones, viz., seven males, average stature 5 feet 4·0 inches, and six females average stature, 4 feet 11·8 inches. The average stature of the males is increased by one skeleton, which, in the opinion of both Dr. Beddoe and Dr. Garson, who have examined them, has marked characteristics of Roman origin, and which is 3 inches taller than the tallest of the rest. He was also found in an extended position, and had a remarkably brachycephalic skull, the only one found in this village. If this skeleton were omitted it would reduce the average stature of the males by 0·7 inches, making it 5 feet 3·3 inches instead of 5 feet 4·0 inches, and the height of the tallest man 5 feet 4·8 inches instead of 5 feet 7·8 inches. It is all the more probable that this skeleton was exceptional in height from the fact that in the neighbouring Romano-British village of Rotherley, the description of which is now in course of preparation in a second 4to volume, the average height of eleven males has been found to be only 5 feet 1·3 inch and that of three females 4 feet 10·0 inches, proving the existence of a very short race inhabiting these villages at that time.

Including together the skeletons in the Woodcuts and Rotherley villages with the skeleton above mentioned, supposed to have Roman characteristics, and adding one other skeleton of the Roman-British period found in a pit in the neighbourhood, all being assumed on sufficient evidence to be Romano-Britons, the following is the result:—Males, eighteen, average stature, 5 feet 2·6 inches; females, ten, average stature, 4 feet 10·9 inches.

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To what cause is this small stature to be attributed? To inheritance of the peculiarities of their long-barrow ancestors? If so, why should their stature have been still further reduced below the average of that people? To the drafting of the stronger portion of the males into the Roman legions abroad? Perhaps the comparatively large size of the females to which Mr. Galton has alluded may be taken to favour that view, or to the results of bad living and exposure, and to evils attendant upon slavery? Possibly the small size of all the other animals may be thought to have some bearing on the general effects of poverty; whilst on the other hand the large size of the grains of wheat, to which I have referred, above what was found to prevail in pre-Roman times, may be taken as evidence of the existence of an advanced state of agriculture in the small square fields which are to be traced in the neighbourhood of the villages.

In estimating the stature from all the long bones, Dr. Topinard's method, as given in his "Anthropologie Générale," has been strictly adhered to. I found that the difference of stature caused by the different methods of estimating the same skeleton by English physical anthropologists including Beddoe, Flower, Humphry, and Rolleston amounted to no less than 4 inches, a difference exceeding the average difference of stature of many European races, and therefore sufficient to invalidate any comparison that might be made from them.[1] Without prejudice therefore to any of the systems advocated by those gentlemen, I have conformed to Dr. Topinard's rules for the sake of uniformity, and in this I am supported by Dr. Garson. But I would draw the attention of anthropologists to this important point. Questions of stature enter so largely into all racial speculations that a uniform system of estimating stature from the long bones is a matter of the most urgent necessity. The uniformity obtained by estimating from the different bones of the same skeleton appears to me to afford evidence, that the calculation is a reliable one if only the proper formula is used, and Dr. Topinard's method, even if it should not turn out to be quite the best, appears to me sufficiently reliable to serve as a generally accepted standard.

In estimating the cephalic index I have also used Dr. Topinard's rules. The glabello-occipital length has been made the chief basis of calculation, although the ophryo-occipital length has in all cases been given as well. The result for the Woodcuts skulls shows: one brachycephalic skull, that of the possible Roman above referred to, whose index is 822; seven mesaticephalic, ranging from 750 to 799, and five dolichocephalic, rang-

[1] Prof. Flower's method accords very closely with Dr. Topinard's.

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ing from 714 to 746. The prevalence of long skulls in the village is therefore very apparent, and this tallies with the subsequent excavations in Rotherley village, where, out of thirteen skulls measured, one only was brachycephalic, with an index of 826; three were mesaticephalic, ranging from 756 to 799, including one, which, if the ophryo-occipital length had been taken, would have been included amongst the brachycephalic; six were dolichocephalic ranging from 702 to 743, and three were hyperdolichocephalic ranging from 689 to 696.

Including together the skeletons in the Woodcuts and Rotherley villages, all of which were Romano-Britons, the following is the result:—Brachycephalic, two; mesaticephalic, ten; dolichocephalic, eleven; hyperdolichocephalic, three.

In my address to the Archæological Institute at Salisbury ("Journ. Arch. Inst.," xliv, page 271), I have referred to the peculiarities of this district as an ancient ethnical frontier, and to the existence of a small dark race of people amongst the peasantry at the present time.

The practice of burying in the villages, which has been brought to light by my examination of two of them, affords good opportunities of studying the peculiarities of race in Roman times, and the number of these villages as yet unexplored appears to promise a rich harvest for future anthropological research.

Discussion.

The President drew attention to the curious uniformity in the calculated statures of the 18 males and 10 females, as shown in the suspended diagram,[1] where they were severally represented by vertical lines, marshalled in the order of their lengths. There was only a difference of 3 inches between the stature whose class place was one-quarter of the length of that class, reckoned from its lower end, and the stature whose class place was three-quarters of the length of the class, reckoned also from its lower end. In other words, there was a difference of only 3 inches between the lower and upper quartiles of the class, which is the same thing as twice the "probable error" of the series of recorded statures. He had shown that the difference between the quartiles in any class of English men of the present day, who belonged to the same broad social rank, was 3·4 inches; similarly as regards English women. If modern men and women were mixed together in the above proportions of 18 to 10, the difference between the quartiles of the mixed series would be much increased; it would

[1] A diagram was exhibited in which the statures of 28 individuals (18 male and 10 female) were given as inferred from the measurement of the long bones of the lower limbs.

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amount to between 4¼ and 4½ inches.[1] But the difference between the variability in stature of these ancient races and the modern ones must be greater than is indicated by the above figures of 3 inches for the one and 4½ for the other, because the statures from which the figure 3 is derived had not been obtained by direct measurement. They were inferred from the length of the leg bones, and were therefore "fallible" estimates of the real statures. It would be easy to subtract the effect of this superadded variation, if we knew the "probable error" of this fallible estimate, but it has never yet been determined. It may be that the ancient Britons were more uniform in stature than our modern and greatly mixed races, and again that the statures of the two sexes may have been less different. It may also be that the individuals in the same encampment were closely inter-related and had a family likeness. The facts to be accounted for cannot, however, be strictly ascertained until osteologists shall have determined the "probable error" just alluded to, which would be a matter of little difficulty. It would be advisable to calculate its value in respect to the height of the living man as inferred from the measurement after death, of his femur alone, of his tibia alone, and of the mean of the lengths of his tibia and femur. It would then be easy to calculate the variability of a race from that of the lengths of one or more of the leg bones of many skeletons. This, he need hardly add, is quite another question from that of average stature.

Mr. W. PENGELLY remarked that, with the Chairman's permission, he would make a few observations on one or two of the topics which had been so ably placed before the meeting by General Pitt-Rivers.

Oyster shells had been mentioned as occurring among the finds met with by the author, and had thus suggested the question, "Were any other shells found?" In the most recent deposit in Kent's Cavern, shells of oysters were abundant, but so also were those of cockles, limpets, and periwinkles, and there were a few examples of *Pecten*, and of the internal shell of the cuttle-fish (*Sepia officinalis*).

Shells, however, were found, but less abundantly, in some of the older deposits; thus cockle shells occurred in the granular stalagmitic floor, and in a branch of the cavern, known as the "Wolf's

[1] I calculated this value from the data in my table of "Anthropometric Per-centiles," published in the "Journ. Anthrop. Inst.," Vol. XIV, p. 277, and upon the supposition that the proportion between the two sexes was as 20 males to 10 females. In this case the table gives most of the data by inspection, and the rest by interpolation, as follows. The most probable heights for 10 females, taken at hazard, are those of each successive tenth per-centile; these are printed in my table. Those for 20 males are the values of each successive fifth per-centile. In the table, the 5th and the 95th are given, leaving the 15th, 25th–85th to be found by interpolation. When this is done, and the 20 males and 10 females values are mixed together and then marshalled, it will be found that the value of the 25th per-centile, or lower quartile, is 64·5 inches; and that of the 75th per-centile, or upper quartile, is 68·8 inches. The difference between these is 4·3 inches.—F.G.

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Cave," twenty-five shells of the common pecten were found in a cupboard-like recess, between two large masses of limestone, in the still older cave earth. In one instance two, and in another five, of them were found neatly fitted one into another and cemented together with stalagmite. There could be no doubt that a human being had not only packed them, but placed them where they were found. The fact that at least some of them were "dead shells" proved that they were taken to the cavern, certainly in some cases, not because they contained an article of food, but because they were useful as utensils. One or two of them contained traces of charred wood. It would be interesting to know whether General Pitt-Rivers met with any "dead shells" among his finds.

Though the articles found on the existing surface of the immediately adjacent ground were, as the author suggests, probably older then those at the bottom of the pits, it should be borne in mind that breaking the surface was necessarily the earliest work of the excavators; so that it is neither impossible nor improbable that at this first stage a tool might occasionally be lost, or broken and cast aside, and thus one would not be surprised to find on the surface as it now exists, tools older, and tools more modern, than those found at the bottom of the pits.

Mr. A. L. Lewis having commented upon the exhaustive manner in which General Pitt-Rivers had conducted his investigations, and the beautiful models which showed the results obtained in a manner which would be at once the example and the despair of all future explorers, asked for further information as to the time and manner of the filling up of the pits. He thought the General's statement as to the extent of difference in height brought out by different methods of measurement of bones must lead to uneasy reflections as to the value of some former statistics, and theories based upon those statistics, concerning the early inhabitants of this country. He agreed with Dr. Beddoe that some of the short people in this country (whatever might be the case elsewhere) owed very much of their low stature to an abnormal shortness of the thigh, and that the thigh was an extremely unsafe index of height. It appeared from General Pitt-Rivers' models that some perfect skeletons had been found on his estate: would it not be possible to put some of these skeletons together with leather or india-rubber washers to represent the cartilages, and to measure their actual length? If this were done, and the result compared with that obtained from calculation of the measurement of the thigh-bone, this very important question might perhaps be settled.

The following paper was read by the author:—

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On the STATURE *of the* OLDER RACES *of* ENGLAND, *as estimated from the* LONG BONES.

By JOHN BEDDOE, M.D., F.R.S.

HAVING, through the kindness of General Pitt-Rivers, had the advantage of examining the human remains from a Romano-British village on his property, I was surprised to find how low was the stature of the inhabitants, as calculated from the data of Professor Humphry.

This led me to pay more attention to the subject of the restitution of stature from the long bones, especially the femur, than I had previously done. One result has been that I have satisfied myself that these very valuable data have been made use of without the corrections necessary for this particular purpose, and that, even in the hands of so good an observer as Rolleston, they have yielded erroneous results.

In the first place, these measurements were made by Professor Humphry on the skeleton; and the standard referred to was the height or length of the skeleton, not of the living body. Topinard[1] says that 35 millimètres (1·4 inch) should be allowed on this account, others have made even higher estimates: I have adhered throughout this paper to that of Topinard.

Moreover, common observation teaches us that short men have, as a rule, shorter legs in proportion than tall men; and it would seem that this applies to both femur and tibia. Hence the indiscriminate application of Humphry's proportions must, in a series sufficiently large to swamp the exceptions, bring out an unduly low stature for short men, and an unduly high one for tall men, thus exaggerating the actual differences.

On this, as on so many other subjects, Topinard is our principal authority; but Orfila, whose observations are rectified and summarised by Topinard in his "Anthropologie Générale," had already accomplished some important work upon it, though his object was purely medico-legal. Orfila measured the long bones of persons whose living stature had been ascertained.

I have constructed a table including 75 skeletons of Topinard's, and 42 of Orfila's, together with a few European skeletons of Pruner Bey's, two of Williamson's from Fort Pitt, and those of the two giants in the Museum of the Royal College of Surgeons, for the measurements of which I am indebted to Dr. Garson. The value of the table is diminished by the fact that we do not know exactly how Orfila and Williamson took their measurements—what they took for their extreme points. Topinard puts

[1] "Anthropologie Générale," page 474.

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the difference between his "maximum length" of the femur, and that which he calls the "oblique maximum," or "maximum in position" (*i.e.*, that gotten by the apposition of both condyles against one of two parallel planes, and of the head against the other) at 4 millimètres, which would make a difference of about 15 millimètres, or three-fifths of an inch, in the whole stature. Now this, I am disposed from internal evidence to believe, was the method adopted by both Orfila and Williamson.

Topinard's figures indicate a considerable increase in the proportion borne by the femur to the skeleton, as one proceeds from the low to the middle statures (1,685 millimètres, about 5 feet 6·3 inches), but no difference between the middle and the tall. Orfila's even indicate a moderate decrease after 5 feet 7½ inches, but the significance of this anomaly is diminished by the recurrence of higher proportions for the femur among the giants. Even here, however, there is no uniformity; but it seems likely that in giants the tibia is more often excessively long than the femur. I have endeavoured to get some further light on this part of the subject from Quetelet's careful measurements of the living subject. He examined fourteen female models, of whom ten were Belgians, two Romans, one a Parisian, and one a Spaniard. Of these three might be rated as moderately tall women, averaging 1,611 millimètres or 63·4 inches, which may be the equivalent of 68 inches in European males; eight as of middle stature, between 60 and 63 inches; and three as short, averaging 1,507 millimètres or 59·3 inches. Now the proportion borne to the total stature by the distance from the top of the trochanter to the ground, was in the tall women 52·6, in those of medium height 51·4, and in the short ones only 49·1. We have here a regular increase, correlative with the height, in the proportions of the lower extremity. On the other hand, the general result of Quetelet's observations on the proportions of men, including Belgians, Ojibbeway Indians, and Kaffirs, shews no increase of relative length of the femur or of the lower extremity in men of 6 feet high over those of 5 feet 9 inches, or even less.

To sum up, it would seem that, as we ascend the scale of stature, the relative length of the femur and of the whole lower extremity continues to increase until we reach the middle height or something more; but that beyond that point such increase is small or doubtful, especially in the femur, any augmentation being more apt to come out in the tibia.

It may be long before Topinard can carry out his intention of collecting a sufficient number of specimens at every stage. Meanwhile, I will endeavour to lay down a rule for reconstituting stature, imperfect indeed, but better than any now in use.

I have already said that the method based on Humphry errs

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in two respects. The first is its omission to take into account the soft parts, the integument of the skull, and the cushion of the heel: this omission can easily be rectified by adding, with Topinard, 1·4 inch, or 35 millimètres. The second, its application of the same proportions to tall, to medium, and to short men, it is less easy to rectify.

The necessity of such rectification may be shewn by quoting some of Rolleston's measurements from his and Greenwell's important joint work.

The young woman from Flixton Wold is spoken of as having had a stature of 61 inches (1,550 mm.). Her femur measured 16·8 inches (426 mm.), and her tibia, not including, apparently, the malleolus, 13·4 inches (340 mm.). These data, whether we follow Orfila or Topinard, indicate a probable stature of quite 62½ inches, if not more. Thurnam would have computed it at from 61·5 to 63·2. A woman from Sherburn Wold, of dolichocephalic type, is put by Rolleston at 56 inches, her femur having evidently measured 15·4 inches (about 390 mm.). Allowing for the "maximum oblique" measurement, for the soft parts, and for the woman having certainly been of short figure, she may probably have had a stature of 58·7 inches. Again, Rolleston speaks of a femur found at Upper Swell as probably male, but giving a stature of only 59 inches (1,500 mm.) to its owner. This estimate must have been derived by him from a length of 16·2 inches, from which Topinard would have inferred, probably, a height of 61·6 inches, Orfila one of 62·2 at least, and Thurnam one of 60·8. My rule would give in this case 61·6 inches (1,564 mm.).

Thurnam in his earlier days used a very erroneous way of computing, but subsequently struck out a new plan, which yields very close approximations in the case of statures either a little above or a little below the middle. This is the striking off an inch from the length of the femur, together with half of any excess there may be over 18 inches, and then multiplying by four. It fails by deficiency in very low and in gigantic figures, and is slightly in excess at about 18 inches. Another very fair rule of his was the addition of one inch to twice the combined length of the femur and tibia. This gives an insufficient result with low statures, but is otherwise fairly correct.

When the tibia alone is available, its length, including the malleolus, may be multiplied by 4·5; the result will generally be a little too small, except in giants. The maximum length of the humerus may be multiplied by five and 1·4 inch added, but here as well as in the tibia, the uncertainty of modes of measurement comes in.

The easiest way to apply Humphry's table is to multiply the

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length of the femur by four, subtract one-eleventh of the product, and add 1·4 inch, or 35 millimètres. The result is very deficient in the low statures, but in the higher ones very fair, or slightly in excess.[1]

The plan I venture to propose, however, is founded on the femur alone. I take away from the length of the femur one-quarter of the excess over 13 inches up to 19, and thereafter only one-eighth; and then multiply by four.

Thus let F = length of femur in inches, and x the living stature; then—

$$\begin{aligned} x &= 4\,(\mathrm{F} - \tfrac{1}{8}\,(\mathrm{F} - 13) - \tfrac{1}{8}\,(\mathrm{F} - 13 - [\mathrm{F} - 19])) \\ &= 3\,\mathrm{F} + \mathrm{F} - \tfrac{1}{2}\,(\mathrm{F} - 13) - \tfrac{1}{2}\,(\mathrm{F} - 13 - [\mathrm{F} - 19]) \\ &= 3\,\mathrm{F} + 13 + \tfrac{1}{2}\,(\mathrm{F} - 19) \end{aligned}$$

Thus, more simply, add to thrice the length of the femur in inches 13 inches, and one-half of any excess over 19 inches. In women, for 13 and 19 read 12·5 and 17·5.

Or, on the metric system, add to thrice the length of the femur 33 centimètres, together with one-half of the excess over 48 centimètres. In women read 32 and 44 or 44·5. The reason for making these allowances in the case of women is as follows: Though the average proportion borne by the lower extremities to the stature is, if anything, rather smaller in women than in men, yet as the middle stature in the former corresponds to a low stature in the latter, it seems probable that the height about which women pass from dwarfish to average proportions of trunk and limbs must be somewhat lower than in the case of men.

Several interesting points appear to arise from the second table. In the first place, it indicates that the neolithic or long-barrow race, if we may judge from what remains we possess, were not quite so small as Rolleston thought them, nor so very inferior in stature to the bronze race as Thurnam made them out to be. The figures on which the latter finally rested were 65·4 inches (1,661 mm.) and 68·4 inches (1,737 mm.); shewing a difference between the two races of exactly 3 inches.

I confess that my rule fails here (in the long-barrow men) to the extent of bringing out an error of excess of perhaps two or even three-tenths of an inch (5 to 8 mm.). Topinard's average from femora of 18 inches is only 66·3 inches, but the evidence of Orfila and of Humphry is strong just here, and even if we allow that Orfila used the maximum oblique way of measurement, we can hardly put the stature of these long-barrow men lower than 66·7 inches (or 1,694 mm.). The average difference between a

[1] The results of this procedure appear in my table under column 6, styled "Humphry, corrected for soft parts."

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stone man and a bronze man will therefore stand at 2·7 inches (68 mm.). No wonder that Thurnam discarded his own method of computation for one based on Humphry. The former gave him a difference of only 1·6 inch (40 mm.) between the two races, the latter one of 3 (76 mm.), thus emphasising Thurnam's great discovery of the racial difference between British stone men and bronze men.

The supposed great inferiority in stature of the neolithic women, dwelt upon by Rolleston, is scarcely borne out by my computation—61·5 inches is not a very low stature. But more data are wanting.

My Romano-British examples are mostly taken from one locality, White Horse Hill, and are of course less valuable than if they had been derived from several sources. Both men and women, especially the latter, are smaller than those of the earlier populations. I look forward with interest to the light which General Pitt-Rivers's discoveries at Rushmore may throw upon this part of the subject.

Of the Anglo-Saxons included in my tables a few appear in more than one of the component lists; the actual number of individuals being about 50 men and 25 women. They are taken from several districts or settlements in the south and south-east of England, and are probably sufficient in number to enable us to approach a true estimate of the average stature of the Saxon population in that region. As the restitution of the average stature was seldom, apparently, a leading motive with those who superintended their exhumation, there is a chance that in some instances selection may have been exercised, the longest femora having been measured, and the shorter ones neglected. This may have been the case at Harnham, but at Long Wittenham and Brighthampton it is pretty clear that Mr. Akerman measured all the femora he could find in measurable condition; and we ehave probably a fair sample of the Saxon peasantry. The few men buried with swords, whether eorlcundmen or tithingmen, are somewhat taller than the average, as might perhaps have been expected.

Reports of the length of unarticulated skeletons I have passed by as quite untrustworthy. Thus a South Saxon skeleton from Firle was described to Barnard Davis as 6 feet 4 inches in length, its femur being, according to Davis himself, only 19 inches; while a skeleton at Brighthampton, with a femur of the same length and a tibia of 16 inches, is recorded as measuring 6 feet 7 inches. These errors were not committed by anatomists, and are beyond any that could possibly arise from different ways of measuring the bones.

The measurements of the Saxon nobles from Ely are of

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special interest, apart from the clear identification of their owners, from the fact that Mr. Bentham has given us the means of checking our conclusions in the lengths of the tibia, humerus, ulna, and clavicle. It would seem that either Bentham used Topinard's oblique maximum, thus understating the length of the femora by perhaps one per cent., or that the tibia, in the bishops especially, were unusually long. I am a little inclined to think this last is an Anglo-Saxon peculiarity. From internal evidence one can say that Bentham was very careful in his procedure. My final result is that the hero of Maldon fight must have been at least as tall as my rule makes him, over 6 feet 3 inches, and that the bishops were a little taller than it allows, probably quite 69 inches, or 1,750 millimètres.[1]

[1] I have not made use of Rolleston's measurements of the Frilford skeletons. They would have been very valuable for my purpose, had their racial attribution been easier: but in many cases it was by no means free from doubt, as Rolleston acknowledged. Frilford seems to have been inhabited, in the later Roman period, by tall men and short women. I am inclined to suspect that some of the tall men assigned by Rolleston to the Hohberg type may have been Roman soldiers of Germanic blood.

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TABLE I.

MATERIALS FOR THE RECONSTITUTION OF STATURE FROM LONG BONES OF THE LOWER EXTREMITY.

1 Authority.	2 No.	3 F (Length of Femur) average.	4 Living Stature.	5 Humphry.	6 Do. corrected for soft parts.	7 Thurnam.	8 Beddoe.	9 (F+T)×2.	10 Excess of 4 F over living stature.	11 Deficit of col. 9
Orfila	2	13·83	58·4	50·2	51·6	51·2	54·4	50·4	−2·2	−8
Williamson	1	15·25	59·6	55·5	56·9	57	58·75	56	+1·4	3·6
Orfila	3	15·75	61·2	57·3	58·7	59	60·25	58·26	1·8	2·9
Topinard	21	16·7	62·8	60·7	62·1	62·8	63·1	60·08	4	2·7
Orfila	4	17·1	64·4	62·3	63·7	64·4	64·3	62·6	4	1·8
Orfila	6	17·3	65·5	62·9	64·3	65·2	64·9	63	3·7	2·5
Pruner Bey	?	17·6	66 ?	64	65·4	66·4	66·8	64	4·4	2
Orfila	8	17·7	66·3	64·4	65·8	66·8	66·1	64·56	4·5	1·7
Humphry	25	17·88	66·4	65	66·4	67·5	66·6	64·5	5·1	1·9
Topinard	29	18	66·3	65·5	66·9	68	67	65	5·7	1·3
Orfila	8	18·1	67·5	65·8	67·2	68·2	67·35	65·34	4·9	2·1
Orfila	2	18·3	68·7	66·5	67·9	68·6	67·9	66·5	4·5	2·2
Williamson	1	18·5	69·15	67·3	68·7	69	68·5	66	4·8	3·1
Orfila	5	18·5	70·1	67·3	68·7	69	68·5	67·5	3·9	2·6
Topinard	22	19·3	71	70·2	71·6	70·6	71·05	69·8	6·2	1·2
Orfila	4	18·8	72·5	68·4	69·8	69·6	69·4	68·1	2·7	4·4
Williamson	1	19	74·5	69·1	70·5	70	70	70	1·5·	4·5
Freeman (Garson)	1	22·5	81·3	81·8	83·2	77	82·25	82·6	8·7	+1·3
O'Brien (Garson)	1	24·9	92·3	90·4	91·8	81·8	90·6	92·2	7·3	− ·1
Spaniard (Topinard)	1	25·7	93·1	93·5	94·9	83·4	93·4	95·2	9·7	+2·1
Two great giants (T)	2	26·2	101·4?	95·3	96·7	84·4	95·2	93·2	3·4	−2·2

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TABLE II.

Stature of the Older Races.

Race, &c.	Locality and Author.	Femur, inches, average.	Tibia, inches, average.	Stature, inches.	Stature, mm.	Stature, (f+t) ×2+1
25 Neolithic ... m	Thurnam...	18	...	67	1702	
5 ... w	Davis, Thurnam, and Rolleston	16·35	...	61·55	1563	
17 Brachyc. fr. (round barrows) m	Davis and Thurnam ...	18·66	...	69	1752	
27 Round barrow m	Thurnam	18·8	...	69·4	1762	
2 do. w	Davis, Thurnam, and Rolleston	17·68	...	65·54	1665	
10 Romano-British m	Davis and Thurnam ...	17·88	...	66·64	1692	
4 do. ... w	do. ...	16·07	...	60·7	1542	
13 Anglo-Saxon ... m	do. ...	18·76	...	69·28	1760	
3 do. ... w	do. ...	16·56	...	62·2	1579	
23 Anglo-Saxon m	Long Wittenham (Akerman)	18·38	...	68·14	1730	
17 do. w	do. do.	16·63	...	62·4	1584	
7 do. with tibiæ m	do. do.	19·03	15·9	70·1	1780	70·86
3 do. sword-bearers m	Long Wittenham and Brighthampton, do.	18·75	...	69·25	1758	
6 do. do. m	Brighthampton, do. ...	18·16	...	67·5	1714	
2 do. do. w	do. do.	16·75	...	62·75	1593	
4 do. do. m	Harnham, Wilts, do. ...	19·37	...	71·1	1805	
4 do. do. w	do. do.	18	...	67	1702	
3 Anglo-Saxon ... m	Ozingell, Kent (B. Davis)	19·1	...	70·15	1782	
Earl Brithnoth ...	Ely (Bentham)	29·5	16·75	75·25	1911	75·5
5 Anglo-Saxon Bishops	do. do.	18·4	15·54	68·2	1732	68·88
Anglo-Saxon general average ... m	... ...	18·37	...	68·4	1747	
Do. do. w	... ...	16·84	...	63·07	1602	

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NOVEMBER 8TH, 1887.

Prof. A. H. KEANE, B.A., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the following new members was announced:—

JAMES KINGSTON BARTON, Esq., of 2, Courtfield Road, Gloucester Road, S.W.; EDWARD BELLAMY, Esq., F.R.C.S., of 17, Wimpole Street, W.; GEORGE JAMES HENDERSON, Esq., of Caterthum, North Dulwich, S.E.; and BERNARD HOLLANDER, Esq., of 52, Welbeck Street, Cavendish Square, W.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From FRANCIS GALTON, Esq., F.R.S.—Monismo o Nichilismo. 2 Vols. By F. Maltese.

From Prof. R. VIRCHOW.—Das Todtenfeld von Ancon in Peru. Ein Beitrag zur Kenntniss der Kultur und Industrie des Inca-Reiches nach den ergebnissen eigener Ausgrabungen. Von W. Reiss und A. Stübel.

From E. W. BRABROOK, Esq.—Perioden im Gewicht der Kinder und in der Sonnenwärme, Beobachtungen von R. Malling-Hansen.

From the AUTHOR.—Excavations in Cranborne Chase, near Rushmore, on the borders of Dorset and Wilts. By Lieutenant-General Pitt-Rivers, D.C.L., F.R.S., &c.

—— China in America: a Study in the Social Life of the Chinese in the Eastern Cities of the United States. By Stewart Culin.

—— The Babylonian Chronicle. By Theo. G. Pinches, M.R.A.S.

—— The Solomon Islands. By Baron A. von Hügel.

—— Le Rôle de la Science dans l'Acclimatation. Par M. Dareste.

—— Przyczynek do Etnografii ludu ruskiego na Wolyniu. By Prof. Dr. I. Kopernicki.

—— De praehistorische steenen wapenen en werktuigen uit den Oost-Indischen Archipel, beschouwd uit een archeologisch en etnographisch oogpunt. Door C. M. Pleyte Wzn.

—— Translation of the "Ko-ji-ki," or "Records of Ancient Matters." By Basil Hall Chamberlain.

—— The Language, Mythology, and Geographical Nomenclature of Japan, viewed in the light of Aino Studies. By Basil Hall Chamberlain.

From the AUTHORS.—La Race Humaine de Néanderthal ou de Canstadt en Belgique. Par Julien Fraipont et Max Lohest.

—— Notes sur l'Ethnographie de la partie orientale de l'Afrique

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Équatoriale. Par le Docteur Victor Jacques et le Capitaine É. Storms.

From the AUTHORS.—Le Cimetière de Saaftingen. Par Louis de Pauw et le Docteur Victor Jacques.

—— Crani Peruviani Antichi del Museo Antropologico nella Università di Roma. Studio di G. Sergi e L. Moschen.

From the STATE BOARD OF HEALTH, MASSACHUSETTS.—Forty-fifth Report to the Legislature of Massachusetts relating to the Registry and Return of Births, Marriages, and Deaths in the Commonwealth, for the year ending December 31, 1886.

—— Eighteenth Annual Report.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Archiv für Anthropologie. Band xvii. Parts 1, 2.

—— Correspondenz-Blatt. 1887. Nos. 6–8.

From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1887. Heft. 3, 4.

From the SOCIETÀ ITALIANA DI ANTROPOLOGIA, ETNOLOGIA, E PSICOLOGIA COMPARATA.—Archivio per l'Antropologia. Vol. xvii. Fas. 1, 2.

From the UNITED STATES GEOLOGICAL SURVEY.—Sixth Annual Report. 1884–85.

—— Bulletin. Nos. 34–39.

From the UNITED STATES BUREAU OF ETHNOLOGY.—Fourth Annual Report. 1882–83.

—— Work in Mound Exploration of the Bureau of Ethnology. By Cyrus Thomas.

From the SMITHSONIAN INSTITUTE.—Report. 1885. Part 1.

—— Smithsonian Miscellaneous Collections. Vols xxviii–xxx.

From the TRUSTEES OF THE PEABODY MUSEUM.—Twentieth Annual Report. Vol. iii. No. 7.

—— Conventionalism in Ancient American Art. By. F. W. Putnam.

From the ROYAL ARCHÆOLOGICAL INSTITUTE.—The Archæological Journal. No. 174.

From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. iii. Nos. 7-11.

From the ESSEX FIELD CLUB.—The Essex Naturalist. 1887. Nos. 5–9.

From the SOCIÉTÉ ARCHÉOLOGIQUE, AGRAM.—Viestnik hrvatskoga Arkeologičkoga Družtva. Godina ix. Br. 2–4.

From the ACADÉMIE ROYALE DES SCIENCES DE BELGIQUE.—Mémoires des Membres. Tom. xlvi.

—— Mémoires couronnés et des savants étrangers. Tom. xlvii, xlviii.

—— Mémoires couronnés et autres mémoires. Tom. xxxvii, xxxviii, xxxix.

—— Bulletins de l'Académie 3° serie. Tom. ix–xiii.

—— Annuaires de 1886 et 1887.

—— Catalogue. 1e et 2e parties.

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From the K. K. Akademie der Wissenschaften, Wien.—Sitzungsberichte philos.-histor. Classe, Band cxii, Heft 1, 2; Band cxiii, Heft 1, 2; Band cxiv, Heft 1: math.-naturw. Classe, I Abthlg., 1886, Nos. 4–10; II Abthlg., 1886, Nos. 3–10; 1887, Nos. 1, 2. III Abthlg., 1886, Nos. 1–10.

From the Magyar Tudományos Akadémia.—Almanach 1887.

—— Nyelvtudományi Értekezések, xiii, 3, 4 and 6–12.

—— Nyelvtudományi Közlemények, xx, 1, 2.

—— Munkácsi Bernát. Votják népköltészeti hagyományok.

—— Történettudományi Értekezések, xiii, 2, 4, 5.

—— Társadalmi Értekezések, viii, 7–10; ix, 1.

—— Dr. Wlassics Gyula. A bünkisérlet és bevégzett büncselekmény, II.

—— Ungarische Revue. 1887. Nr. 1–7.

—— Naturwissenschaftliche Berichte. iv.

—— Ethnologische Mittheilungen aus Ungarn. 1887, Heft 1.

From the Bataviaasch Genootschap van Kunsten en Wetenschappen.—Tijdschrift voor indische taal-, land- en volkenkunde. Deel xxxi, Afl. 5, 6; Deel xxxii, Afl. 1.

—— Notulen van de algemeene en bestuurs-vergaderingen. Deel xxv, Afl. 1, 2.

—— Dagh-Register gehonden int Casteel Batavia vant passerende daer ter plaetse als over geheel Nederlandts-India Anno 1640-1641. Van Mr. J. A. van der Chijs.

From the Academy.—Proceedings of the American Academy of Arts and Sciences. New Series Vol. xii.

—— Boletin de la Academia Nacional de Ciencias en Cordoba. Tom. ix, Ent. 3, 4.

From the Association.—Journal of the East India Association. Vol. xix, Nos. 5–7.

—— Journal of the Royal Historical and Archæological Association of Ireland. Nos. 70–72.

—— Report and Transactions of the Devonshire Association. Vol. xix, and Extra Volume. The Devonshire Domesday, Part iv.

—— Proceedings of the American Association for the Advancement of Science, Vols. xxxiv, xxxv.

From the Institute.—Proceedings of the Royal Colonial Institute. Vol. xviii.

—— Transactions and Proceedings of the New Zealand Institute, 1886. Vol. xix.

From the Institution.—Journal of the Royal United Service Institution. No. 140.

From the Society.—Proceedings of the Royal Society. Nos. 256–258.

—— Proceedings and Transactions of the Royal Society of Canada for the year 1886. Vol. iv.

—— Transactions and Proceedings of the Royal Society of Victoria. Vols. xxii, xxiii.

—— Proceedings of the Royal Geographical Society. Vol. ix, Nos. 7–11.

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From the Society.— Journal of the Society of Arts. Nos. 1806–1811, 1813–1824.
—— Proceedings of the Society of Antiquaries. Vol. xi, No. 3.
—— Transactions of the Society of Biblical Archæology. Vol. ix, Part 1.
—— Proceedings of the Asiatic Society of Bengal. 1887, Nos. 2–5.
—— Journal of the Asiatic Society of Bengal. No. 274.
—— Journal of the Royal Asiatic Society. Vol. xix, Part 4.
—— Transactions of the Asiatic Society of Japan. Vol. xv, Part 1.
—— Journal of the China Branch of the Royal Asiatic Society. Vol. xxi, Nos. 5, 6.
—— Report of the Leeds Philosophical and Literary Society for 1886–7.
—— Bulletins de la Société d'Anthropologie de Paris. Tom. x. Fas. 2.
—— Bulletin de la Société d'Anthropologie de Bruxelles. Tom. v. 1886–1887.
—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1887. No 3.
—— Bulletin de la Société de Borda, Dax. 1887, No. 3.
—— Boletim da Sociedade de Geographia de Lisboa. 6ª Serie, No. 12, 7ª Serie, No. 1.
—— Bulletin de la Société des Sciences Naturelles de Neuchâtel. Tom. xv.
—— IX Jahresbericht des Vereins für Erdkunde zu Metz für 1886.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Band xvii, Heft 1.
—— Fünfundzwanzigster Bericht der Oberhessischen Gesellschaft für Natur- und Heilkunde.
From the Editor.—Nature, Nos. 922–927, 929–940.
—— Journal of Mental Science. Nos. 106, 107.
—— Timehri. Nos. x, xi.
—— American Antiquarian. Vol. ix, Nos. 3, 5.
—— Science. Nos. 228–234, 236–247.
—— Photographic Times. Nos. 301–306, 308–313, 315–319.
—— L'Homme. 1887. Nos. 9–11, 13, 14, 16–18.
—— Matériaux pour l'histoire de l'Homme. 1887. Feb.–Aug.
—— Revue d'Ethnographie. 1887, No. 2.
—— Bullettino di Paletnologia Italiana. 1887, N. 7, 8.

Major-General Sir Frederick J. Goldsmid, K.C.S.I., and Mr. E. Delmar Morgan, F.R.G.S., exhibited some Implements and Works of Art from the Lower Congo.

The following paper was read by the author:—

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The LOWER CONGO; *a* SOCIOLOGICAL STUDY.

By RICHARD COBDEN PHILLIPS.

[WITH PLATE V.]

THE part of Africa dealt with in the following pages is the Congo River, from about Vivi downwards to the mouth, and the coast northwards to Loango, and southwards as far as Kinsembo. The chief ports which will be mentioned are as follows:—On the north bank of the river, ascending, there are Banana, near the mouth, Ponta de Lenha, Boma (often marked on maps as Embomma), Binda and Vivi; on the south bank San Antonio, Chimvika, Kisanga, Chiehianga, Musuku, Noki, Angoango, and Matadi. On the coast-line southwards are Cabeça da Cobra, Mangue Grande, Mukula, Ambrizette, and Kinsembo; on the coast northwards Kabinda, Landana, Chiloango, Masabe, Ponta Negra, and Loango. (*See* Map, Pl. V.)

To understand the present system of society it will be necessary to take a retrospective view of the same, and also to set down the chief factors, external and internal, that have played a part in moulding the life and character of the native. Let us commence with the latter as they existed, say, thirty years ago, and then trace the progress of the tribes up to the present, noting the incidence of disturbing influences when they arise.

Of the external factors we will commence with the climate; this is damp, hot, and malarious, and uniform throughout the district in question. The mean temperature may be taken at 75° Fahrenheit, the limits being about 65° to 90°. The oppressiveness of the heat and the chill of the cold seem to be exaggerated by the great humidity, which is seldom less than 80 per cent. of saturation, and which often rises as high as 90 or 95 per cent. It is pointed out by Spencer that this character of climate has never been known to give rise to, or to sustain developed civilisation; hot, dry, and healthy localities being the birthplaces, and a somewhat colder climate the nurseries of such tribes as have laid the foundations of civilised nations. The similarity of climate throughout the district deserves attention: this combined with the similarity of the soil renders the productiveness of the whole district very uniform, no one place giving rise to products of a different character from those of the others; thus there is little possibility of an extended interchange of inland commodities, as each part can make for itself all that the neighbouring tribes could offer. The only noteworthy exception to this homogeneity is that between the littoral tribes and the inland tribes, the former can make salt, and can catch and dry fish; and thus an

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interchange of commodities can take place to some extent. The influence of the trading factories will be considered apart, as it has varied from time to time during the period which we shall presently consider.

While on the subject of climate, it must be noted that the yearly rains are very variable both in their extent and in their time of falling, this has a disturbing effect on the crops that is often disastrous, paralysis of trade and scarcity of food being the result of these meteorological irregularities. The food of the natives is mostly vegetable, and the ravages of insects and mould are such as to make a reserve supply impracticable; thus the surplus from a good year cannot be made available in times of scarcity. Another result is that not more food will be grown than the natives expect to consume. To enumerate the chief food-stuffs of the Congo, the vegetable ones are mandioca, maize, several kinds of beans, the ground-nut (*Arachis hypogea*), the ground-bean (*Voandzea subterranea*), a few yams, and the palm-nut. This last is not cultivated, but is cut from the trees wherever they happen to grow.

For animal food, of which the natives eat but little, there are sheep, goats, ducks, and fowls, besides a little game, field-rats, and in some parts the larvæ of insects. The coast tribes make considerable use of fish, prawns, and, in some parts, oysters and crabs.

Another peculiarity of the country has to be noticed as having an immense negative influence on the civilisation of the Congo tribes; the difficulty of attack, and the shelter to a retreating party afforded by the dense woods which cover large areas. The banks of the river and the inland country present large woods and grass-grown spaces that can well protect fighting parties in ambush, these can pass from place to place without being seen by an attacking party, the roads or tracts are narrow and must be kept, otherwise progress becomes difficult if not impossible. The available springs of water are few and not easily found, their quality is bad and their extent limited. Thus a small tribe of natives can easily retreat or scatter, while an attacking force is placed at a great disadvantage. The inhabited islands of the river are situated in labyrinths of creeks, bordered by immense swamps of mangrove trees: the short and shallow cuts are perfectly known to the natives, while pursuit is impossible. This makes the subjection of the natives to a central power a practical impossibility; surprises, slaughter, confusion, and at last nobody to fight would be the end of an attempt to attack the island tribes in their swampy retreats.

No more convincing proof of the futility of attack can be adduced than that afforded by an attack some two years ago by

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Portuguese gunboats on a small town named Katala. The vessels anchored opposite the village and poured in a fire from their guns and a hundred and fifty rifles for fourteen hours, the natives not even retreating; they scattered in the grass and behind trees, and in ridicule returned the fire with their flint guns, enlivening the proceedings by beating drums and making hideous music on their bugles. Had the vessels landed a force, a retreat of two hundred yards would have been quite sufficient to give all necessary shelter to the natives. The Portuguese recognised this, and after being thus befooled, weighed anchor, and departed amid the derision of the natives. The result was one woman fatally wounded, who was innocently watching the approach of the vessels, when they opened fire without a moment's warning. I should like to add that this attack was not only unjustifiable, as have been all the attacks I have known (with one possible exception) during a sixteen years' residence in those parts, but that no pretext whatever had been given until the town had twice been attacked by bellicose traders.

However, I now refer to the affair to emphasise the statement that the natives are shielded from attack by their surroundings, and to a much greater extent than most people would imagine. Higher up the river, this protection by swamps and woods ceases.

Bearing then in mind that the external factors are generally adverse to progress, we will now consider the natives physically, and then turn our attention to the internal, or mental factors which must be understood in order to form a just estimate of the Fiote, as they call themselves.

No systematic measurements[1] of natives have ever been made, but they appear to be of a rather low stature, broad and muscular, with slightly larger viscera than the European.

There is, however, much difference in tribes in various parts, the apparently best nourished being the island tribes, called Misorongo, between Banana and Ponta de Lenha, and those of the south bank of the river; next come the Loango and the littoral Kabindas, then the river natives from Ponta de Lenha upwards, and lastly the coast tribes south of the river, comprising Mukula, Ambrizette, and Kinsembo. The appearance of these latter tribes seems to have degenerated of late years through repeated famines, they are much more miserable in appearance than formerly, being now wasted and lacking muscle in a high degree. The difference is marked between the Misorongo below Ponta de Lenha and the natives of Kabinda

[1] It appears that Dr. Falkenstein has made many such measurements, but the results are not yet generally known.

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origin above that place, a difference for which it is difficult to account, but which may perhaps to some extent be due to the greater amount of fish caught in the lower part of the river, and the more extended cultivation of the more secure islands. A curious feature of these Misorongo is the peculiar womanly cast of features when the body is covered with a shawl, it is often hard to distinguish the sex of the individual in the absence of hair on the face, as often happens. Strange that the most turbulent of the Congo tribes should have such a feminine appearance!

As for the bodily proportions, the arms are somewhat longer in proportion to the legs than in the European races, the legs showing a falling off from the acknowledged standard. The natives seem to show in some respects a greater strength than civilised races, and in other respects the reverse; this anomaly may perhaps be explained by the following considerations:— The natives excel in carrying weights, which the civilised man drops through pain, not through weight; a hammock carried on a pole over the shoulder soon becomes unbearable to us if no pad be used, through the cutting into the shoulder, not from the weight itself; were the load more comfortably distributed we might carry it as easily as the native; it is insensibility to pain, not extra strength, that enables the native to bear such loads with ease. Again, take endurance in walking. The native is in his fitting climate, and is doing what he does every day, but the European, besides the disadvantage of disuse, has to support an almost intolerable degree of heat, which deranges the power of endurance more than the muscular exertion.

In a fair trial of strength the European would probably show a decided superiority.

Strength and endurance depend not alone on the development of the muscular system, requisite though that is, but on the state of the nervous system, which supplies the force that works the muscles. The view that the nervous system is wanting in development explains the phenomena we find, and the general insensibility to pain, the indifference to heat and cold, and the absence of shock after severe injuries, all probably depend on the same reason.

Whether insensibility to heat and cold, and immunity from their effects go together, I cannot say, but it is certain that no European could endure the extremes that the native bears with indifference.

Fevers, which are dangerous to the European, are much more easily thrown off by the native without the use of special medicine; they go away and do not return, which is seldom the case with the European.

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The digestive system of the natives is larger than that of the civilised: they can eat enormous quantities of food at a meal without inconvenience, and then fast or take but little nourishment for a long period. Their fat-deposits appear to respond at once to the requirements of the body, fluctuating according to the amount lately eaten. This physical peculiarity is necessitated by the conditions of existence; death would soon result were the system to require a proper amount of food at stated intervals, as the food would often not be obtainable. The feast-and-famine existence to which uncivilised races are subject, makes the corresponding bodily peculiarity common to savages in general. Monteiro, an accurate observer, considers these races as probably a degenerated remnant of higher developed forefathers, and in this view I coincide; evidence in favour of this view will be forthcoming later on.

Turning now to the emotional nature of the natives, we find a manifest inferiority. Their feelings, prompting action, are characterised by impulsiveness, as in the youth and the lower orders of the civilised; though usually serious they are easily roused to laughter by anything ridiculous. I have seen questions of apparently a serious nature laughed off by some comical remark; though friendly disposed towards each other they quarrel about the veriest trifles, a handful of peppers, or a leaf of tobacco often originating a fierce dispute.

Tell them that it is childish to quarrel about such trifles, and they will probably look foolish and laugh over the affair. Fond of their wives and children, they still abuse them for trifles, or get the crotchet into their heads that some near relative is bewitching them, and forthwith destroy them with the poison ordeal.

Their property they use in the same impulsive fashion; after haggling half a day for a trifle, they will give away more than the value of the disputed article. While demanding heavy damages for the most trifling aggression, they will almost ruin themselves with liberality rather than be thought mean. Stinginess is the black man's abomination, as it is of our school-children.

Reliance on the capable man is a very prominent trait in their character, as with females and the lower orders at home; a master of slaves, or the father of a family may be very exacting towards his dependents, yet they will support him devotedly if only he can protect them from outside annoyance. The lenient man is looked on with suspicion; they fear he has not spirit enough to properly resent aggressions, and their loyalty diminishes. The Fiote are thievish, but, as a rule, confine their depredations to objects of little value, or such as

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they think will not be missed. They do not wish to injure foreigners, but steal general goods when opportunity offers, thinking that the white man has plenty more, and will not miss a small quantity. The proprietary sentiment is but little developed, the native, after accumulating a small stock of goods, is quite content to spend his time in idleness until his stock runs short, and want compels him to renew his labours.

The natives will seldom undertake labour unless the returns will be speedy. The planting of trees that require much time to mature, or any other labour whose outcome is not speedy, is seldom undertaken; this is by no means entirely due to listlessness, but to the fear, often well grounded, that they may not reap the result of their labours. They may be dispossessed by a stronger man, they may, meanwhile, have to migrate to some distant part, or they may die in the meantime. Custom, again, plays a great part in determining the actions of the natives; they do not like to be eccentric, and what is customary becomes a law for all. Thus are perpetuated the uncomfortable fashions of tattooing the body, the wearing of heavy brass rings round the ankles, the filing or knocking out of teeth, circumcision, the going bare-foot, &c.

We are so accustomed to the phrase "sack-cloth and ashes" in connection with the funeral rites of some eastern nations, that we seldom think of it as a filthy, disgusting mode of expressing sorrow. The Congo custom is almost identical; the natives rub themselves in the soil and wear their dirtiest garments for several days after the death of a relative, presenting a shockingly dirty figure. One has to think it strange that they cannot mourn in a more cleanly fashion, but such is the custom, and no one can change it. If a trader perform a friendly service a few times for a native, it becomes looked on as a custom, and is forthwith expected as a right. Small need to say that gratitude is very rarely exhibited by the natives, when every favour is so soon looked on as a matter of course.

The Fiote are untiring beggars, even amongst themselves, and on obtaining what they ask, they go away without saying "thank you."

Hospitality is well developed among the better classes, and the parting guest always expects a present.

Parental affection is better developed than might be expected among races where descent is reckoned through females. Where relationship of father and son is fully known or firmly believed in, fathers are affectionate to their children, and mothers uniformly so. Conversely, children are respectful and obedient to their parents, allowing always a certain amount of latitude for boyish wilfulness.

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Although I have considered the emotional nature low, there is a remarkable exception, the sentiment of public justice. In any dealings with the natives, if a European suffer aggression, and can clearly prove that such is the case, he is certainly adjudged to be in the right, and the offender condemned to a penalty which is assessed by the natives and the European: and further, if a chief promise that such and such a fine shall be paid, his word is in all cases sufficient. I have never known an instance where this statement fails, and the fact is the more remarkable as the chiefs present are not one whit better than the culprit, nor are the other natives who join in condemning him. How this extraordinary trait could have been evolved during a development from a lower form than the present, I am at a loss to understand; it seems more likely to be an outstanding remnant of a higher state, of which we find other vestiges.

In intellect we find the same stunted development as with the emotions; the relation of cause and effect, in all but the most patent and mechanical of cases, being beyond their grasp. Here again, custom rules; just as many a school-boy performs operations with fractions thus and thus because he has been told to do so, and believes the answer will be right because it is the rule, so the natives attribute known effects to the most inadequate causes, inadequate both quantitatively and qualitatively.

Let us take a case. Some years ago, the chigoes, or burrowing fleas, were imported from Brazil; let us ask a Kabinda what is said as to their origin.

He will probably say they have come because the King of Kabinda is not yet buried (a man who died forty or fifty years ago), and nothing will persuade him to the contrary. You may point out that in Loango, where the king is still alive the chigoes are just as bad, or that they are as troublesome in Ambriz, where the Portuguese hold the land; nothing will alter his belief.

Again, a certain drought in Landana was attributed to the missionaries wearing a certain kind of cap during service: the natives said that this stopped the rain, a great outcry that the missionaries must leave the country was raised, and things looked really threatening. The missionaries showed the native princes their garden, that their cultivation was being ruined for want of water, and asked if it was probable that they would spoil their own crops; the natives remained unconvinced, and only when the rains at length fell plentifully did the excitement subside. The capacity for the lower intellectual acts of perception, recognition, memory, &c., is well developed, and appears early in childhood; in this respect the natives are much on a par with the civilised races, but the limit is reached early in life, and

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but little mental progress is observable after adolescence is reached.

The ideas are mostly of the simpler forms, seldom passing the concretes of actual experience, generalisations being, as a rule beyond their power.

Association of ideas though good as implied by good memory, only takes place in the concrete form of contiguity in time and space as actually already perceived; analogies are confined to the crudest forms, and a very simple figure of speech is apt to be unintelligible. Although the majority can fairly well explain their ideas in Fiote or Portuguese, yet an attempt at literal translation is soon given up in despair; a simple thing like the conjugation of a verb in Fiote, when the Portuguese is repeated to them, being usually beyond their powers. They soon complain of headache, and call to their companions to assist them. The fundamental act of intelligence, the intuition of likeness and unlikeness, is very circumscribed; and high acts of intellect are thereby negatived.

How then, it may be asked, are decisions of public justice to be formed in the absence of extended intelligence? The answer is, that each case is judged on its own merits, and by the recognised customs of the country. Moreover, the issues are seldom of a complicated nature, so not much difficulty arises on this score.

An accompanying trait is the absence of rational surprise; on seeing something new a vacant wonder is all that is observable, and this is very transient, and the new experience is classified as "white man's fashion." It almost follows as a matter of course that there is no curiosity, no wish to enquire into the cause of a novel experience; it never occurs to the native that there is a cause of the novelty or an explanation required. In like manner there is almost total absence of theorising about natural phenomena. It is worth while to here remark that these traits in the intellectual and emotional nature constitute an immense obstacle to missionary effort, and no striking results in this direction can be expected; nay, the wonder is that anything can be done for the elevation of the native.

Let us now examine some of the native ideas, and I think it will be seen that the present are the outcome of a forgotten past system, a ruinous heap showing where a former edifice had been reared.

Take first the wizard, the ndochi, as he is called.

No theory of occult art or magic, no diabolical attributes will enable us to understand the native's ideas on this subject. The only thing he knows, or thinks he knows, is that the ill-will of some people is physically detrimental to others.

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These people are called *ndochi*, translated wizards or witches, but their power is supposed to be a natural attribute, if we may use the term where the natural and supernatural are not contrasted. The anatomical structure of the ndochi is supposed to be peculiar, and his baneful influence is inborn, though developed afterwards.

This power may exist without the knowledge of the possessor, and may equally produce its evil effects without his knowledge.

It would appear also that if any ordinary person only become envious and spiteful enough, he may develop into the ndochi, though formerly innocent enough. Thus misfortune, disease, and death are generally attributed to the ill-will of some ndochi, and it becomes of importance to detect and destroy these dangerous people. This is done by means of a poison ordeal; the bark of a leguminous tree, called *nkasa*, is ground to powder, and a given dose is administered to the suspected person; it has three modes of action, as an emetic, a purge, or a toxic, causing death by coma.

The first of these effects indicates innocence, the others guilt. The belief in the efficacy of this ordeal is capable of a perfectly natural explanation, but as it is never inquired into by the native, it is not necessary to dwell on it here. But again, the tree is not looked on as possessing supernatural properties, but simply as possessing this valuable property, just as other trees possess other valuable properties. Prophylactics are also required against the ndochi; these are found in various charms, of which the natives, more especially the women, wear a profusion. The charm may have had its origin in mummy-worship, as has been ably contended, but the black man does not puzzle himself with what does not concern him, he only wears them, which is enough for his purpose.

The charm, or fetish, has outgrown the limit of protecting the wearer from the ndochi class; there are magical images for the discovery of thieves; the repression of drunkenness and other social obliquities; the registration of oaths and contracts. For petty thief-catching, a form of ordeal by fire is in great repute. These beliefs, Spencer shows, are absent in the most degraded tribes of savages, and do not make their appearance until a considerable development has taken place. The disappearance of all theory, while the forms remain, seems to indicate a degeneracy from a higher development. Indeed, in the absence of a written literature, it is probable that the past of any tribe of uncivilized people would reveal, could it be known, many fluctuations in development—sometimes progressing, at other times retrogressing.

As to the religious and theological ideas of the Fiote, they

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recognise the existence of Zambi, the son of Mpungu, the daughter of Dezu, as a supreme being. Zambi is supposed to be somewhere in the sky, but whether Mpungu and Dezu are now alive nobody seems to know or care.

Some of the missionaries consider this account as inexact, their information being that Zambi Mpungu is one being; what they make of Dezu I do not exactly know. Probably we are both right; our information is drawn from somewhat different sources, and the native ideas are so uncertain that probably both theories are held.

The one I have adopted is perhaps a corrupt form of the teaching of the old Catholic missionaries, Dezu being a corruption of Deus, and the importance of the Virgin has led to the feminine form as adopted by my informants. However, no great importance would attach to a correct rendering of the doctrine of the Trinity, as no worship is paid in any form; it is merely a piece of useless knowledge, a relic of former days.

During an epidemic of small pox, I often heard say that Zambi (never Zambi Mpungu) is a bad person, wanting to kill everybody.

It is some little comfort to the missionaries that there is no complicated polytheistic system to get rid of, as that could not fail to greatly increase the difficulty of their labours.

Some natives are inclined to believe in a future life, but lay no stress on it. The tales of ghosts seem to prove it, but on the other hand these ghosts are a malignant class of beings who may never have been alive at all, and who now lead a wretched kind of existence; so the hope is that good people will not have this infliction after death, but rest quietly in their graves.

The graves of kinsfolk are not revisited. I at one time thought that this was due to indifference, but now attribute it to another cause. I once offered a woman the portrait of her deceased son, which she refused to my astonishment. She explained that she should cry whenever she saw it, so she preferred not to have it.

The magicians employed as rain-makers, makers of charms, and doctors, perform certain rites that seem to be propitiation of superior powers or ghosts; but inquiry only confirms the view that they are shreds and patches remaining from a time when they really were such, but from which the significance has departed, leaving the bare form.

Let us now pass on to the consideration of the social structure, first confining ourselves to those features which have remained practically unaltered for a long period, and afterwards tracing the changes that have of late years arisen.

The foundation of the social system is the family, consisting

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of the head man or patriarch, his wives, family proper, dependents, and slaves.

The dependent class consists of poor free people who attach themselves to the strong man for protection, and in return acknowledge his authority. It is necessary to belong in some form to some man of influence and respect, or the individual is open to depredation on all sides and obtains the support of none. There are also quasi slaves, having been delivered over by their families as hostages for debt—for litigation between families ultimately takes the form of debt—and as it frequently happens that payment is delayed, or even impossible, these dependents remain all their life under the authority of the new master. Their condition is, however not worse than before, and they are indifferent as to their ownership. The only claim on them is a part of their earnings, which in any case they would have to make over to somebody or other.

The consideration of the slave class is a convenient point at which to take up the historical part of the subject, I shall therefore proceed to relate their condition in the slave trading times, and point out the changes which have since taken place. Going back, then, say thirty years or more, we find the slave trade in full force; the wealthy natives possessing a large number of slaves strictly domestic, and not destined for sale. Besides these, they purchased such as were brought from the interior for export; these were procured by the interior tribes in various ways, some doubtless by slaving raids on their neighbours, others made over for debt, others again were criminals, waifs, and slaves of those who, by misfortune, or otherwise, were unable to support them. The slave raids were probably confined to the interior tribes, the coast natives preferring to buy rather than capture them.

The export slaves were of the apathetic nature of slaves as we now find them; they were not seriously troubled at the thought of changing owners, the only dread being that they were wanted for food in the country across the water. This fear was often dispelled by the accounts of slaves who had been in America or Cuba, and who gave them accounts of a good time in their new homes.

The chief trade carried on by the whites was in slaves, that being the most lucrative article of commerce; there were large barracoons where the export slaves awaited transport; the white men having their staff of domestic slaves to attend to the well-being of the passengers. I have been acquainted with several natives who were thus employed, who possessed a very fair knowledge of medicines useful in the prevalent diseases of the natives. The slavers well knew that more was gained by letting

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the export slaves rest and amuse themselves than by requiring them to work, and besides this there was little or no work for them to do.

They thus lived a life of unrestraint, free from care, as long as it lasted, the hardship of the slave's life commencing with the horrible middle passage, where they endured the hardships that are so well known. It is a belief with many that the English cruisers made an end of the slave trade: no notion could be more erroneous, they prevented many from arriving at their destination, and by forcing the slavers to overcrowd the ships increased the hardships of the remainder, but probably not one slave the less was exported in consequence of the blockade, but probably more than would have otherwise been required were obtained to fill the places of the unsuccessful shipments. The profits were such that one successful run out of five would insure a profit, and the comparatively few arrivals in America kept up the demand. The death of the slave trade was the cessation of the demand; that and that only prevented the traffic existing to-day. For there is now no slave trade on the Congo, it is confined to the east coast, and in a restricted form to the Portuguese colony of Angola. It is the custom for Portuguese apologists to exclaim that there is no slave trade in their possessions; well, we need not quarrel about names, and it seems best to confess that there is a relative gain to the slave by being in the hands of a white master. I can testify with tolerable certainty that the life of the slave is better and more tolerable under the civilised master than under the native, and the demand, if the supply be not checked, is probably not greater than the surplus population, the natural increase of the slave class being sufficient to supply the demand without raids being resorted to.

The native family at the time we have been considering, will thus be seen to be a combination of considerable power, and mutual antagonism may well be conjectured; this was to a great degree prevented by the marriage customs. The natives are polygamous, and the usual consequences followed.

It is a mistaken opinion that in a polygamous society most men have more than one wife: the relative numbers of the sexes forbids the arrangement being extended to the whole population; really only the wealthier can indulge in a plurality of wives, the poorer having to be content with one or often with none.

Thus the heads of the families were they who for the most part had a plurality of wives, and the marriage laws made it forbidden to marry a relative either by birth or by previous marriage: thus each family became widely connected by marriage with as many other families as the head man had wives, and so

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a vast network of relationship connected the different families. These families, sometimes singly, sometimes two or more together, formed the villages, or towns, as they are generally called, so the towns became all more or less related to each other. This prevented the constant broils which otherwise would have surely taken place; things were settled sometimes with a little fighting it is true, but seldom with serious disturbances. As superior authority there were the kings who presided over considerable districts, and sundry officers who had charge of sub-sections, these were the Mambukus, each having his Kapita, Mankaka, and sundry other petty officers.

The whites were admitted to residence and trade on payment of blackmail to the neighbouring chiefs, and were then considered in most, if not in all respects, entitled to the same respect as the free men themselves: they were considered as naturalised inhabitants of the country. This blackmail, in return for which the trader was promised the friendship of the surrounding tribes, went and still goes by the name of customs: there was a stipulated amount paid for establishing in the dominions of a given king, and so much paid quarterly, half-yearly, or yearly to the neighbouring chiefs in each branch establishment while open. Establishments might be transferred from one trader to another, but if abandoned the land reverted to the natives. The tenure of land among the natives was as follows:—The neighbouring towns agreed among themselves as to the division of land for planting or building, and as such, the head of the town had the authority to grant a location to a white settler, but land was never the private property of any one native. At the time of which we are treating, certain firms located themselves in the districts for the purpose of legitimate trade, and so by the side of the slavers there grew the origin of the commerce as it at present exists: the domestic slaves of the natives learned to extract oil for export, to grow ground-nuts, and prepare rubber and other articles of commercial value. The chiefs provided them with food and clothing, and claimed the produce of their labour.

With the cessation of the slave trade, the chiefs became poorer, and the whole of the working population was turned to produce and to sell to the whites, the more intelligent of the slaves acting for their masters.

A class of brokers also arose, as natives from a distance were wishful to bring produce to the factories for barter, in order to obtain at first hand the articles they most needed. The general population then awoke to the fact that they might as well do business on their own account and not entirely for their masters. The chiefs, growing always poorer, could at last no longer pro-

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vide food and clothing for the slaves, who had to shift for themselves as they best could. Their exertions became more and more on their own account, and less and less for their masters, the demands of the latter being resisted on the very reasonable grounds that they must first support themselves and then give a something towards the support of the masters. Thus the power gradually passed into the hands of the people, leaving ever less and less to the chiefs. Custom however, preserved to these the chief voices in political matters; they remained the body convening public meetings, and were the chief deliberative body, the populace usually confining themselves to signifying their assent or the reverse. The whites retained their status in return for payment of their customs, and had the same voice as before in such questions as concerned them.

Disputes with the natives were generally easily settled, though in rare cases the assistance of European force has been obtained. Better were it, had the traders been given to understand that no help whatever would be given them, come what might; I have generally found that reliance on governmental interference has resulted in arrogance leading to disputes which have ended in loss of trade and expense and humiliation to the traders, coupled with injustice to the natives. For the natives have no chance of making their side of a question known, and are judged to be in the wrong without due reason, but that does not prevent loss to the trader, for the social state being disturbed, trade is diverted to other parts, at times for considerable periods.

Something should be said on the former piratical habits of certain of the river tribes.

In the islands near the mouth of the river there are towns which, from their isolated position, are out of the lines of trade; in former times they developed piratical habits to the great annoyance and detriment of the traders; vessels were plundered, but no one was killed unless they offered resistance to the attacking parties. In consequence of this, some years ago, a demonstration was made by the English, which appears to have had a good effect—at any rate, I believe the practice of piracy has been altogether given up. I could, however, mention a Portuguese trader, who maintained an attitude suited to those times, as owner of a large number of domestic slaves, who enjoyed a complete immunity from these attacks; and who, generally ready to help others in want of assistance, has done more than all the European governments to put down piracy in the river. Some firms, fearful of ill-repute at home, have left themselves open to these attacks, and suffered much loss through them, and now that the necessity has passed, they underrate the efforts of

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their more daring neighbours, and would point to an English naval demonstration as the cure of the evil. These piracies have long been a thing of the past, and a recurrence does not seem at all likely.

Of late years several missions have been established in our midst, and have been pushed far higher up the river than the traders have yet gone; their influence is not very apparent, nor should it be expected to rapidly show itself, from the very nature of the material on which it has to work.

The most rapid growth is the tumour, a diseased formation tending to the destruction of the body, so I greatly suspect it will be with the conversion of these heathens; slow, sound progress is the proper progress, and if that be going on, as I believe, it is wise to be patient, and persevere in faith. Accounts reach me of rapid progress at Banza Mantika, halfway up the road between Stanley Pool and Matadi, just as ten years ago I was informed of rapid progress at Benin River: as this last has shown itself illusive, so I expect will the former.

Unpopularity of a chief may cause a tribe to desert him, they congregating round a mission station, but this cannot be expected to last: some necessary regulation of the missionary's may cause the dispersion of the new converts.

But to say, as some say or imply, that missionary effort is a failure, I deem ignorant and presumptuous. I think, however, that they should be more in our midst, and not all crowd into the upper river where freight on goods runs away with much wealth that might be much better employed.

The supporters of missions at home think that the coast natives have been so debased with the spirits sold them by the traders, that no effort can prevail to better them. This is far from the actuality however; the traders would have but a poor chance of doing trade were the coast tribes so bad as they have been represented. It may serve to explain native habits and manners to relate the following incident:—

Having an excellent cook who was at times intemperate, I sent for his chief, and after the usual greeting, addressed him somewhat as follows:—"See this cook of yours, everybody knows he is the best cook in the country, yet he is becoming a useless fellow. I cannot get anything properly cooked, as I find him drunk and incapable, instead of minding his work. He has already been discharged four or five times from this factory for intemperance, and each time he goes to town he remains until he has spent all his cloth for rum, and then he begs his industrious neighbours to feed him. He has the mark of an old cut on his forehead where Senhor Fulano hit him with a soup-tureen for spoiling the dinner, and if he goes on in

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this way he will fall into the river and the crocodiles will have him.

"Now I want you to bring a fetish and knock it that he shall not drink any intoxicating drink as long as he remains in my service. I will pay the cost of the fetish, but bring it along early, or this fellow will spoil my dinner." The chief replied, "Yes, sir, you are quite right, he is a good-for-nothing fellow, he is of no use to us in town, and of no use to the white men: we will bring the fetish as you request, and hope he will give you no further trouble." The fetish was brought, a nail was driven in, and the nuisance put an end to. As long as the nail remains in the figure, the man believes that breaking the law gives the fetish the power to kill him, and he therefore behaves himself on pain of death. He could buy the removal of the nail, but at great cost, which he cannot afford, for though it costs but little to put a nail into a fetish, it is expensive to get it out again.

An interesting relic of former development is found in the Kabinda class of people, called *Ndunga*, a set of masked and disguised men, who have license to steal anything that they can lay their hands on without disclosing their identity, and who may kill anyone who succeeds in identifying them. They were formerly appointed as secret agents of the king to gather information, and to accuse powerful masters who were unjust to their inferiors. This they could do with safety, while preserving their *incognito*, and so great was their usefulness that they were held justified in the use of any means to preserve their character. They dress in a large cloak of leaves that falls from the crown of the head to the feet, and wear a mask on the top of all, thus having a gigantic and terrible appearance. They disguise their voices when speaking to outsiders, so that no one can tell with whom he is speaking. When returning to the town, they leave their cloaks in the bush, hidden away in a safe hiding-place. With the rise of popular power, they have had less and less work to do: to-day they have only left them their privileges and some connection with rain-making. So it too often happens, institutions survive when the need which called them into existence has disappeared.

A few other examples of native manners and customs may be of interest. I will give one concerning inheritance, which is rather curious.

It has already been said that descent is reckoned through females, the meaning of this may not be clear to all. If a man die, the bulk of his property goes to his sister's son, not to his son; the reason being that of the blood-relationship of the nephew there can be no doubt, but the descent of the son may be questioned.

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The nephew is, therefore, looked on as a nearer relative than the son, and he is the heir, and should he die, more grief is felt than in the case of the son.

A strange exception is made when a man marries a slave of his: the son then ranks first in this case, as the natives say that he is not only presumably the next-of-kin by birth, but also by purchase, as the mother belonged to the father.

Did this rule not hold, the son would become his cousin's slave, which the natives see would be absurd and unjust.

Slaves can buy slaves for themselves, and often become men of importance; in Ambrizette some of the wealthiest and most influential men are slaves without masters. The masters have become extinct, and the slaves carry on their trade without hindrance, having their own towns and slaves just as have the free men. The only difference observable is that the slave traders are not allowed to wear silk or coral, and if they become "too saucy" as the free men term it, they are reminded that such conduct is unbecoming in slaves, and that they ought to be more respectful. They generally acknowledge the truth of this, and fall into the background. A keen lawyer of the place once explained to me:—"You see the pattern on that plate, you cannot alter it, the white is made white and the black is made black, and no one can change it. So it is with the slaves, they are born so, and the free people are born free, and no man can make it not so."

Honesty is not conspicuous, but the following occurrence is worth relating:—One morning two strangers presented themselves with a bag of palm kernels and told me that their chief had been shot in a quarrel, but before he died he told one of them that he had long owed me a bag of palm kernels for goods advanced on credit, and he was wishful to pay me.

The messenger had scarcely started when the other joined him with the news that the prince was dead. So they both brought me the news and the payment.

APPENDIX.

The Origin of Ordeals.

The origin of charms, whether trivial objects worn by individuals, or the more imposing magical images of the Fiote, has received much discussion; I need scarcely remind you that much of the first volume of Herbert Spencer's "Sociology" is devoted to this and cognate questions; I do not, however, remember having seen any attempt to explain the origin of ordeals by poison or by fire.

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The belief in these ordeals is, or has been, very widely distributed in space and in time, and it appears to me that we are bound to seek its origin.

This is also true of the belief in the evil influence of the people known as witches, in the sense in which the uncivilised employ the term.

It appears safe to conclude that in the normal conditions of savages, widely scattered over the face of the earth, there must have been from time to time circumstances which would lead them to infer bewitchment, and to point to these ordeals as the remedy.

Can any such cause be now assigned, or is it lost for ever? In order to raise this question, I would submit the following attempt at explanation, subject to the correction and criticism of any who may be able to throw other light on the subject.

In a given body of savages, wherever situated, it will from time to time happen that one is desirous of secretly destroying some other of the number.

Open violence may be inadmissible, and the only likely method is to poison him.

Of poisons known to savages, all are vegetal, and not in the form of alkaloids or tinctures, but in the crude form of leaves, seeds, and bark.

Many such substances must be known to savages, but other difficulties present themselves; the poisons must not be too nauseous, and their quantity requires regulating to avoid vomiting on the one hand, and a dose that will only derange and not kill on the other. These difficulties are not easily overcome, and such attempts to poison will often fail.

But though success be not easy, suspicion will almost inevitably be aroused; two, three, or more find themselves simultaneously sick after eating together, or they observe an unaccountable flavour with their food, and they will be sure that someone has attempted to poison them. Circumstantial evidence will often indicate the culprit; he has been seen lurking about the cooking-pot; he is known to be at enmity with his fellows, or strange beans or bark are found in his possession.

What is more natural than for him to be forced to partake of the same food? And will not the others see that he eats his fill, if so much be left?

The physiological effect of fear, as far as I am able to hear, is a surexcitation of the vagus nerve, inhibiting the heart's action, and so checking the circulation of the blood. Other consequences must follow, among which is the stoppage of the flow of saliva, and paralysis of the muscular coats of the stomach.

For this last reason, the culprit will be unable to vomit, and

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the poison will produce its full therapeutic effect, be that coma, drastic purging, or other.

What will strike the attention of the spectators is the peculiarity that the culprit cannot vomit, and his confession, or the independent knowledge of his guilt will lead them to conclude that poisoners cannot vomit such and such a poison.

But out of several poisons some one or two will produce more marked emetic effects on people in general than will the other drugs: these will then be looked on as excellent tests of guilt, the emetic effect proving innocence, the absence proving guilt.

This theory, once started, will not rest at this stage; it will be concluded that the poisonous or non-emetic effect is produced not by the previous action of the individual of letting fall a certain substance into a pot, but by the fact of the criminal intention.

Thus it would soon be a current belief that not only actual poisoners, but also would-be poisoners, could be discovered by this ordeal.

Much further growth is now possible. A given person, feeling himself sick, thinks he is poisoned. Suspecting an enemy, he denounces him, and makes him undergo the ordeal. The suspected person fails to vomit, thereby showing that he is at any rate a would-be poisoner, but he persists to the last that he has actually done nothing whatever against his neighbour. After his death, the sick man recovers. This is often the case, ailments far oftener disappear than end fatally, but for ignorant savages there is nothing irrational in their coupling together their recovery and the death of their enemy, and thence arguing that their illness was caused by the enmity.

Thus might spring the idea of the ndochi or witch, who simply by the fact of his ill-will causes sickness or misfortune to others, who can, however, be tried, condemned, and executed in a safe and convenient way, by poison-ordeal, with presumably little chance of poisoning the wrong man.

Is there any collateral evidence to support this theory? I think so; the natives inform me that the powdered bark is easily swallowed by innocent people, but with difficulty by criminals; this is probably in consequence of the non-secretion of saliva already referred to.

A similar phenomena is observable in the Malay ordeal of chewing rice; the criminal cannot moisten his mouthful but spits it out in a dry condition.

The ordeal of the hot knife affords further evidence:—A suspected person bares his leg, and after a few magical rites receives three slaps on the calf with a hot knife.

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If the circulation of the blood be stopped the heat of the knife cannot get drafted away at the same rate as would otherwise be the case, and the individual will be burned. This ordeal is in high repute to discover petty thieves, and probably with justice. It is suggested that the magician regulates the heat of the knife to burn whom he will, but I have seen cases when this was certainly not the case; the knife made the man's horny hand smoke as he tried the temperature before applying the test to each individual, yet on one occasion he failed to burn any out of thirteen youths. He went away declaring them all innocent, which afterwards proved to be the case. Yet so great was the heat, that, although not actually burned at the moment, in two or three days all but one had raw legs!

Did the magician burn whom he chose, he would make many mistakes of omission or commission, and his fraud would be of short duration.

Another ordeal, consisting of eating mandioca, a staple food, from the mouth of a fetish, causes the body to swell up considerably; if this swelling be also a secondary effect of fear, we may be on the right track to discover why of old witches would not drown.[1]

Without further speculation on these matters, I would remark that it is well known to the natives and to the whites residing in their midst, that these ordeals are usually successful in bringing many delinquencies home to their perpetrators: if this be admitted, and not rejected without examination as impossible, further research is a duty, and a more interesting one could hardly be found.

Description of Plate V.

Map of the Lower Congo, showing the position of the various localities mentioned in the foregoing paper.

Discussion.

Mr. E. Delmar Morgan, in making some remarks on the collection of objects exhibited from the Congo, before the reading of the paper, spoke as follows:—

I will endeavour as shortly as possible to give you my impressions of the Congo and its people as I found them four years ago.

The office of Administrator for the International Association which devolved upon me after the severe illness of Sir Frederic Goldsmid, gave me opportunities for observing the natives, the more

[1] The phenomenon of swelling is exemplified in the Mosaic ordeal (Numbers v, 21). I am not prepared to hazard any explanation of the other symptoms here mentioned.

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so as the special object of our journey was to endeavour to bring about a good understanding between them and the Association. At every halt we made in our progress up the river it was our practice to invite the chief men of every village to a conference, or what is known in Africa as a *palaver*, to which they invariably came bringing a few gifts such as fowls, a goat or two, a bunch of bananas, or some other fruit, and occasionally specimens of native industry. In return we on our side bestowed on them a few yards of cloth, calico, or bright-coloured handkerchiefs, blankets, beads, &c., together with the blue flag of the Association which they were expected to hoist at their villages. At these palavers I was obliged to remain a passive though interested spectator, the talking being all done by the Belgian officer who accompanied us.

The natives are usually great talkers, emphasizing their speech by clicking the tongue or by cracking the joints of their fingers, a practice also followed by the interpreters employed by the Europeans in their dealings with them. On one occasion the audience, seated in a circle round their spokesman repeated after him in chorus the two last syllables of each sentence or parenthesis; apparently their way of signifying approbation just as we might say, "Hear, hear." The effect of this was to lend a rhythm to the discourse. The orator, aged and experienced, wore an old military tunic, and had a military cap on his head, giving him a droll appearance, and the burden of his speech was a review of the intercourse between the blacks and Bulo Matadi's (Stanley's) white men. Next to him sat a chief with a necklace of leopard's teeth, a bunch of feathers stuck on his head, and brass armlets. Many of them carried old-fashioned muskets, known as trade-guns, the stocks ornamented with brass nails. But the insignia of the chiefs on the Lower Congo were more often long staffs studded with brass nails or with a tuft of hair fastened to the handle; a small bell held in the hand, and continually tinkling on the march, sometimes formed part of the equipment.

The first natives I came across on the Lower Congo were the Mussorongos, or Mushirongos, inhabiting both banks from the mouth upwards for about 60 miles, as well as the swampy islands. They are fishermen, but some few may be seen at work in the European factories. The Mussorongos are well known to the officers of Her Majesty's ships, and of other vessels visiting the mouth of the river, and they are frequently mentioned in the Blue Books; they are physically a degenerate race, and have the unenviable notoriety of being pirates.

The Kabindas I first saw at Vivi. They come from the coast a little to the north of the Congo, and are paler skinned than the negro. The Kabindas too are tall, well made, with good features, the women being graceful and occasionally pretty. Having come under the influence of the Portuguese they are more intelligent than the people farther inland. Hence they are useful as intermediaries between Europeans and the natives, though inferior to the Zanzibaris trained in the English missions on the east coast. Another

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race whom I shall mention are the Krumen who were at the time of my visit in the service of the Association. Their home is on the west coast between Cape Palmas and Cape Three Points, and they claim to be the rightful owners of Liberia. The Krumen or Kruboys are thick set, powerful men quite black in colour. They hire themselves out to the captains of trading steamers, and make themselves useful when the white crews are overcome by heat and attacks of fever.

Turning to the natives of the Congo proper—those on the lower river are a mixture of Bakongos or Basongos, Babwendes, Batékes, and other tribes of the upper districts. These are distinguishable from one another by their tattoo marks and other peculiarities, to be recognized by the experienced eye. Their language is the Bakongo dialect of the Fiote tongue spoken with variations right across Africa from east to west, and generally known as the "Bantu," a word signifying "people." Their dress in the districts more accessible from the sea coast shows that European intercourse is gradually changing their primitive habits. Thus the Kabindas wear shirts and even jackets and trowsers; the Congo tribes a waistcloth of calico or only of reeds or grass cloth, but the chiefs are beginning to cover their shoulders with coloured blankets or some gaudy piece of stuff, and military coats are much in fashion. In the higher districts above Stanley Pool the villagers wore hardly any covering, their black skins being often smeared with palm oil and occasionally dyed red or painted in a grotesque fashion.

The tattoo marks of the Babwendes form a lozenge shape on the forehead, those of the Batékes are arranged in lines on both cheeks and on the breast. It has been remarked by a recent writer (Dr. Chavanne) that tattooing is regarded by the natives as a protection against their fetish or evil spirit. They have a great love of ornaments, brass rings worn on the arms and legs being most common. Some of these rings are very heavy, and I have seen women so heavily weighted with leg rings as to be hardly able to walk. I remember a queen of the Wavunias with a brass collar round her neck weighing from 16 to 20 lbs., and compelling her every now and then to lie down and rest, these ornaments being permanently fixed on, so that the expression "*Il faut suffrir pour être belle*" applies among African women as well as among their European sisters. I do not know whether they are taken off after death. Beads are much prized by this people, so much so as to be the currency in some parts of the country. Strings of beads form the only dress of girls and infants, the colours varying in different districts. Earrings are always worn, and among men the custom of piercing the cartilage of the nose and inserting a piece of bone is common. But one of the most striking peculiarities is the mode of dressing the hair in large chignons standing out from the head and well oiled.

Their diet is chiefly a vegetable one—the cassava or manioc being the staple food. They also eat bananas and other fruits. The men file the front teeth to a point which adds considerably to

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their savage appearance. Their voices are rough and uncontrolled, and are singularly harsh and unpleasing to the ear. Their arms are long in proportion to their bodies, enabling them to climb the tall stems of the palms like apes. It is curious to watch the way in which they collect the palm wine or maláfú. A wyth is passed round the tree and the body of the man, the ends being tied in a knot. Placing his feet against the tree and supported by the wyth the man ascends with remarkable ease and celerity to where the gourds are fastened, some 20 or 30 feet above the ground, when he pours the contents of the gourd into another taken up with him for that purpose and descends in the same agile way.

The religion of the people of the Congo is a low fetishism accompanied by all kinds of superstitions, and amongst others ancestral worship. On the graves of their chiefs are placed bits of broken pottery and little figures rudely carved, and it is customary to bury with the chief the cloth acquired by him during his life. In Bonny, on the Niger, I saw the "juju" house, with its rows of skulls and other sacrificial offerings, but this was reported to be no longer used as a place of worship, and the priest had ceased to officiate at Old Kálábá (Calabar), the juju house had been destroyed through the influence of the missionaries, though fetishism was said to be secretly practised and the bodies of human victims offered up in sacrifice frequently floated down the river. The barbarous superstition which led to the extermination of twins had also been stopped by the efforts of the same missionaries. But these and many other barbarities are said to be practised on the Upper Congo to this day. Nor have the natives on the lower river advanced much in civilisation. Commerce has indeed taught them to value the white man's fire-water, his guns, his cloth, and his baubles; they are to some extent restrained by the fear of their mysterious visitor, but they cannot understand his motives for living among them, nor can they appreciate the advantages they may derive from his presence. It will take generations of patient missionaries wholly devoted to the task to open a brighter future to the black races of the Congo.

Major-General Sir Frederic Goldsmid, referring to the implements and weapons of war, musical instruments, articles of wearing apparel, tusks and hides of animals, and other specimens from the Congo, or West Coast of Africa, exhibited by him that evening, stated that they had been, for the greater part, received by him since his return to England in 1883, from Dr. Ralph Leslie, who, together with Mr. Delmar Morgan, had accompanied him on his expedition in that year. These gentlemen had, however, remained in Africa when he himself had been compelled, through ill-health, to embark for Europe. As a rule, a ticket was attached to each specimen, explanatory of its purpose. Sir Frederic Goldsmid addressed a question to Mr. Phillips as to the longevity of the natives of the Lower Congo. He himself had been struck by the few old people he had seen there. Indeed, he had felt that he was not only old enough to be father of most people he met, but in many

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instances the grandfather. It might have been morbid sensitiveness on his part, but he believed that few people in those regions did attain old age, and the fact, if such it were, seemed sufficiently important for record, in reference to climate, mode of life, &c.

The AUTHOR, in reply to Sir F. Goldsmid, said that the natives of the Congo seldom attain a great age, but he could not definitely say why. In answer to another inquiry he stated that combs, of which one was exhibited, were not worn as ornaments, but were used for combing the hair by both men and women. The use of a "medicine-bag" seemed a mystery, until he explained that it was to be worn round the arm as a charm.

NOVEMBER 22ND, 1887.

Prof. FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of Miss HUDSON, of 71, Lancaster Gate, W., was announced.

The following presents received since the last meeting were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From A. W. FRANKS, Esq., M.A., F.R.S.—British Museum; Statement of the progress and acquisitions made in the Department of British and Mediæval Antiquities and Ethnography in the year 1886.

From the SUPERINTENDENT, GOVERNMENT CENTRAL MUSEUM, MADRAS.—Administration Report for the year 1886–87.

From the GOVERNMENT OF NEW ZEALAND.—Results of a Census of the Colony of New Zealand, taken for the night of the 28th March, 1886.

From the SOCIETY OF ANTIQUARIES.—Archæologia. Vol. L.

From the ESSEX FIELD CLUB.—The Essex Naturalist. No. 10.

From the ACADEMY.—Kongl. Vitterhets Historie och Antiqvitets Akademiens Månadsblad. Nr. 169–171.

From the INSTITUTE.—Proceedings of the Canadian Institute. No. 148.

From the UNIVERSITY.—Mittheilungen aus der Medicinischen. Facultät der Kaiserlich-Japanischen Universität. Band I, No. 1.

—— Journal of the College of Science, Imperial University, Japan. Vol. I, Part 3.

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From the SOCIETY.—Journal of the Society of Arts. Nos. 1825, 1826.
—— Proceedings of the Philosophical Society of Glasgow. Vol. xviii, 1886–87.
—— Transactions of the Asiatic Society of Japan. Vol. xv, Part 2.
From the EDITOR.—Nature. Nos. 941, 942.
—— Science. Nos. 248, 249.
—— Photographic Times. Nos. 320, 321.
—— Revue d'Anthropologie, 1887. No. 6.
—— L'Homme, 1887. Nos. 19, 20.

The following paper was read by the author:—

The ORIGIN *and* PRIMITIVE SEAT *of the* ARYANS.

By CANON ISAAC TAYLOR, LL.D., Litt.D.

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THERE is no problem connected with anthropology, as to which in recent years, scientific opinion has undergone such a revolution as the question as to the region in which the Aryan race originated.

At the Manchester meeting of the British Association the theory was advocated by myself and Prof. Sayce, which five years ago would have been universally scouted, and yet it was received with general assent.

Within the present century no less than four theories successively have held the field.

Only thirty-five years ago when I went in for my "little go" at

[1 It should be explained that the author, having been abroad while this paper was passing through the press, has not had an opportunity of revising the proof.—ED.]

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Cambridge, the worthy Examiner before whom it was my lot to go up for my *vivâ voce* examination shared the then common belief, that the present inhabitants of Asia were descended from Shem, those of Africa from Ham, and those of Europe from Japhet; the linguistic and ethnic diversities between Europeans, Africans, and Asiatics having arisen on the plains of Shinar, in the year 2247 B.C., as calculated by Archbishop Ussher.

This opinion, which at all events possesses the charm of definiteness, was succeeded by the Caucasian hypothesis of Cuvier, Blumenbach, and Peschel, which traced the Indo-European race to Mount Ararat or the Caucasus, rather than to the Tower of Babel, forgetful of the fact that mountain fastnesses are not the cradles of races, but camps of refuge for the remnants of shattered tribes, and that the cradles of races are great plains, rivers, and valleys.

The Caucasian hypothesis was replaced by the Central Asian theory, which has held its ground almost to this day.

It was advocated by Prof. Sayce in his "Principles of Philology," published in 1874, and also in his "Introduction to the Science of Language," published in 1880, and was only surrendered in the third edition of that book, published in 1885, in favour of that which I am about to place before you. I cannot be far wrong in assuming that it is probably held by some of those present in this room.

I cannot do better than state this theory in the words of one who has done more than any other man to secure its acceptance in this country.

Prof. Max Müller states his opinion that "before the ancestors of the Indians and Iranians started for the South, and the leaders of the Greek, Roman, Celtic, Teutonic, and Slavonic colonies marched towards the shores of Europe, there was a small clan of Aryans settled probably on the highest elevation of Central Asia, speaking a language not yet Sanskrit or Greek or German, but containing the dialectical germs of all." (Max Müller's "Lectures," vol. I, p. 212).

The spot where this small clan lived was, he thinks, "as far east as the western slopes of the Belurtag and Mustag, near the sources of the Oxus and Jaxartes, the highest elevation of Central Asia." (Max Müller's "Lectures," vol. I, 239).

This theory was stated by Prof. Sayce in his "Principles of Philology," nearly in the same words. "When the Aryan languages first make their appearance, it is in the highlands of middle Asia between the sources of the Oxus and Jaxartes." (Sayce, "Principles," p. 101).

The only real ground for this opinion, was the belief that Zend and Sanskrit were nearer than any other languages to the

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primitive Aryan speech; but now that this opinion has yielded to further investigation, the deduction based upon it falls also to the ground.

The theory, however, has had the support of the greatest names in the last generation of scholars. It was held by Lassen, Bopp, Pott, Jacob Grimm, and Prichard, and is still held by Max Müller, so no wonder, with such support, it met with almost unquestioning acceptance.

A solitary protest was raised by Dr. Latham, who as early as 1862, urged that it was a mere assumption, destitute of any shadow of proof, and without even a presumption in its favour. He vainly challenged the production of any evidence in its support; but his voice was *vox clamantis in eremo*—he was set down as an eccentric dreamer.

But at last the tide of reaction set in. Benfey in 1868 followed Latham with the philological argument that the undivided Aryans knew nothing of the palm or the tiger, but were acquainted with the birch and the beech, the bear and the wolf, which point to the temperate zone of climate, and more especially to Northern Europe as their primitive home The beech especially, is a lover of chalk soils, which I believe, are not found westward of a line drawn from the Black Sea to the Baltic.

In 1871 Geiger followed with the further argument that they also were acquainted with the oak,[1] and also with the characteristic northern cereals, barley and rye, but not with wheat, a more southern grain, and that they must have originated in some northern region, as they had common names for snow and ice, for winter and spring, but not for summer and autumn. Their summer, therefore, must have been short, and their winter long. He also followed Latham in the assertion that no solid argument had yet been advanced in favour of the then accepted hypothesis of an eastern origin.

Fick, followed and corrected by Prof. Wilkins, has also shown that the primitive Aryan region was overgrown not only by the oak, the beech, the elm, and the birch, but also by the *fir* (*puka*), the primitive name of which was transferred in India to the betel nut palm.[2] To the fauna known by the primitive Aryans he added the wolf, the stag, the elk, the hedgehog, the goose, the thrush, the crane, the starling, the salmon, the eel, the wasp, and the bug. The cogency of the

[1] The common name for the acorn is *galandi*, "that which falls," and from this are derived in lands where there are no oaks the word for the testicles—*glands*.

[2] Proto-Aryan, *puka*; Greek, πεύκη; Lithuanian, *pusz-ies*; Old High German, *fiuk-ta*; German, *fich-te*; English, *fir*; and Sanskrit, *púga*, the betel nut palm.

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argument depending on these names does not rest on their being common to the eastern and western Aryans, but on their use by the European Aryans. It is impossible to suppose that ancestors of the Kelts and the Slaves migrated from Central Asia to Europe, and acquired these common words in Europe after their separation from the Iranians and Indians, but before their separation from each other. The separation of Kelts and Slaves must date from a more remote period than the separation of Slaves and Iranians.

The undivided Aryan race must have lived near a sea, where the lobster, the seal and the oyster were found, and they possessed some kind of boats or ships. They also had wheeled carriages, implying that they came not from a mountainous region, but from a plain, an inference confirmed by the conclusion, which however, Prof. Wilkins doubts, that they had invented some rude kind of plough.

These conditions limit us, in seeking for the cradle of the Aryan race, to some well-wooded northern plain near the sea, and west of a line from Riga or Königsberg to the Black Sea; or if we include in the primitive Aryan fauna the eel, the salmon, and the oyster, we shall have to place them as far west as the Elbe.

A northern origin seems then to be certain, but why not bring them from Northern Asia instead of Northern Europe?

The answer is that the Aryan words common to the whole race, such as the elm, the oak, and the beech point to the fauna and flora of Europe, and not of Asia—certainly not of Central Asia; while an additional argument is that, as far as we know, there are no Aryans there, or ever have been. The neighbourhood of Lake Balkash, suggested by Piétrement, has always been the home of Mongolian races.

Writers of the new school incline with singular unanimity to a belief in the European origin of the Aryans. Peschel thinks the primitive seat of the Aryans was somewhere in the neighbourhood of the Caucasus; Benfey places it in the plain of the Volga; Friedrich Müller inclines to the south-east of Europe; Geiger to central and western Germany; Cuno and Pösche to the central plain of Europe; Latham to Podolia or Volhynia, south-east of the Lithuanians. In support of this view Dr. Latham urges that since Lithuanian is the nearest congener of Sanskrit, the original seat of Sanskrit must have been in approximate contact with Lithuanian; that Lithuanian is immobile—the Lithuanians being apparently the survival of a great people once stretching far to south of its present limits—as far indeed as the Danube, if, as seems probable, the ancient Dacian was a language of the Lithuanic class—while Sanskrit, in India,

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is intrusive, since at some time it must have been united with Iranian, somewhere in the Bactrian region. Hence it would appear that the united Hindu-Iranian people were a nomad tribe which moved down the Volga from the Lithuanian region, and passed north of the Caspian up the Oxus, which then flowed into the Caspian.

Again, Latham urges that Lithuanian is closely related to Slavonic, its geographical neighbour, and Slavonic again is related to Teutonic.

It is more difficult to suppose that the Lithuanians, Slaves, and Germans migrated from the Oxus, than that the Hindus and Iranians migrated from the Volga to the valley of the Oxus.

It is more probable that the smaller class split off from the larger, than the larger from the smaller.

It is merely an assumption that the human race came from the east. The great antiquity of man in Europe is established. Virchow maintains that the Engis skull belongs to the Teutonic type, and proves the very early existence of a Teutonic race on the Meuse.

The migration of the Iranians is no more difficult than that of the Magyars, who are an intrusive tribe of nomads from Asia, having no congeners within 700 miles.

To bring the Lithuanians, Slaves, and Germans from Bactria, is as absurd as it would be to bring the Finns from Hungary.

The smaller body breaks off from the larger, which remains *in situ*.

The question remained practically in abeyance from 1871 to 1883, the European origin of the Aryans being held as a sort of pious opinion by half a dozen scholars who had devoted special attention to the subject, while the old Central Asian hypothesis still held its ground, with the practical acquiesence of the learned world. But in 1883 the question received a new impulse. In that year two remarkable books were published, Penka's *Origines Ariacæ*, a slashing, but somewhat too dogmatic work, and the cautious and more scholarly book of Dr. O. Schrader, entitled *Sprachvergleichung und Urgeschichte*. Dr. Schrader, as the result of an exhaustive investigation, comes to the final conclusion "that the European hypothesis, that is, that the origin of the Indo-European races is to be sought westward rather than eastward, appears to be far more (*weitaus*) in accordance with the facts."

These two books drew general attention to the subject, and induced Prof. Sayce in 1885 to surrender the Asiatic hypothesis which he had advocated in 1880, and his conversion was accompanied or followed by that of other students, my own I confess among the rest.

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Dr. Schrader only commits himself to the general opinion that the migrations of the Aryans took place southward and eastward, rather than northward and westward, and in this I agree with him. Prof. Penka is much more definite, and he tries to fix the cradle of the Aryan race, not in Central Asia, but in the Scandinavian peninsula. For reasons which will presently appear, I do not think this opinion tenable; but this credit must be given to Penka, that it was his book followed by another, *Die Herkunft der Arier*, published in 1886, which demolished the old hypothesis, and that directed general attention to the subject which the more scholarly work of Schrader might have failed in effecting.

Schrader's book is philological, but Penka's argument is anthropological, rather than linguistic. He argues that most of the Aryan-speaking races are only Aryan by language, not by blood. The nations now speaking Aryan languages exhibit, he says, several distinct ethnological types. These are:—

1. The Scandinavian and North German type:—Dolichocephalic, tall, fair, with white skin, with a Grecian nose, straight and fine, blue eyes, blonde, golden or yellow hair, and abundant beard. This, he thinks, is the pure Aryan type.
2. The Mediterranean type of Italy and Spain:—Brachycephalic, short, dark, with black eyes, dark hair. This, he thinks, is Iberic, and ultimately Berber.
3. The Slavonic type:—Brachycephalic, with a short face, short stumpy nose, and little beard. This is the Turko-Tatar or Ugric type. To this type belong the lower classes of Bavaria and Southern Germany, who are brachycephalic and dark, while the upper classes are dolichocephalic, tall, and fair.
4. The Kelts are largely mixed; some classes are tall and red haired, others short and dark.
5. The Iranians and Indians, originally tall and fair, but much altered by climatic influences.

It has to be determined which of these represents the pure primitive Aryan type.

Now there is no question that residence in a southern land, or a mixture of darker blood, tends to make a fair race darker; while the converse is not true; residence in high latitudes or a mixture of blue blood does not make a dark man fair.

The Jews and Portuguese in India have become almost black; the fair Goths of Spain, the Greeks, and the Hindus, have become darker than they were; whereas the polar races remain dark and short; a residence for countless generations in the north has not

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given them the Aryan type. The Lapps, the Ostiaks, the Samoyedes, the Eskimo, the Red Men of the Canadian Dominion prove that a race may dwell innumerable centuries in northern climes without acquiring the fair hair, the blue eyes, the white skin, and the tall stature of the Scandinavians.

It is, therefore, more probable that a fair race should have become dark than that a dark race should have become fair. There is no instance known of a dark race having become fair, whereas there are many instances of fair races becoming dark. Race characters, where there is no change of climate or mixture of blood, are very permanent. The Egyptian and Assyrian monuments show that 5,000 years have not essentially changed the Semitic or Negro type.

But change of speech is more easy to effect than change of blood. Change of speech is the rule rather than the exception in case of conquest. The conquered readily acquire the speech of the conquerors, while the conquerors, being usually fewer in numbers, acquire the physical type of the more numerous conquered race. The exceptions are not numerous. The Normans in France and England, the Lombards in Italy, the Bulgars in Bulgaria, have lost their speech; but on the other hand, the Negroes in the United States and Jamaica speak English, in Haiti French, in Cuba, Spanish. In Peru and Mexico, the pure-blooded Aztecs and Peruvians speak Spanish. Asia Minor was Hellenized. Arabic now prevails in Syria and Egypt. Latin spread over Gaul and Spain. German has replaced Slavonic on the Elbe, Basque is retreating before French and Spanish, Bohemian before German, Finnish before Russian, Welsh and Gaelic before English. The superior people have a wonderful power of imposing its language on conquered or enslaved races, superior in mere numbers to themselves. Change of language is far easier and more frequent than the change of race type.

Following out the argument, we may conclude that the Lapps and the Samoyedes are probably an Eskimo race which has acquired a Finnic or Ugric speech. This is shown by their short stature and their dark skins and hair, while the Irish of Donegal and Kerry, and the Welsh of South Wales are probably, as shown by their short heads, short stature, and dark hair, an Iberian race which has acquired a Keltic speech, just as the Mahrattas are largely a Dravidian race which has learnt an Aryan speech. On such grounds Penka argues that the Russian Slaves are tribes mainly of Ugric blood, which have acquired an Aryan language, while the Mediterranean races are mainly of Iberian blood who have learned the Aryan speech of their pre-historic conquerors.

This argument is confirmed by the fact that the nobles in

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these lands, who would be the descendants of the conquerors, are fairer and taller than the labouring classes, who represent the conquered race. This is conspicuously the case in Bavaria and Southern Germany, and also in France, Italy, Sicily, Spain, Greece, Scotland, and Ireland.

For these reasons it seems probable that the original Aryan people were fair and tall, and that the short, dark types of Southern and Eastern Europe are Aryans only in language and not in blood.

In addition to these *a priori* arguments, all the historical indications tend to show that the original Aryan conquerors of southern lands were taller and fairer than the races by whom they have been absorbed, who seem to have been of Iberian or Berber blood, and to have crossed from Africa in the time of the Dolmen stream.

Penka has collected from ancient authors many passages tending to prove that the Greek and Roman nobles had fair or auburn hair, blue or grey eyes, a white skin, and tall stature. It is thus that Homer pictures his gods and heroes, as in the cases of Minerva, Achilles, and Menelaus. The same is the case with the high caste Hindus, who represent the Aryan conquerors in the purest strain; they are taller and fairer than the lower castes. It was the same with the Persian nobles. The purest blood of the Hellenes is found among certain mountaineers of Crete, whose fair hair and blue eyes bear witness to their pure Dorian blood.

The Scythian tribes of Herodotus, who, according to Jacob Grimm, spoke an Aryan language intermediate between Iranian and Slavonic[1], seem to have shared the fair Aryan type. More especially the Budini of Herodotus, who dwelt north of the Black Sea, between the Don and the Volga, near Saratov, had blue eyes and reddish hair.[2]

The Ossetes of the Caucasus, who call themselves Iron (= Iranians), who are probably to be identified with the Massagetæ of Herodotus, and the Alani, who dwelt north of the Caspian, present the Aryan type. They are of blonde complexion, with blue eyes, and yellow or red hair.[3]

The Kurdish and Persian nobles frequently have blue eyes. The high caste Rajas of Rajputana are often fair.

The Seres, the eastern neighbours of the Scythians, are described by Pliny as a tall race with blue eyes and red hair.

Classical writers have noted again and again the resemblance in physical type of Kelts and Germans. They were distinguished

[1] Zeuss, "Die Deutschen," page 294 *et seq.*
[2] Bunbury, "Anc. Geog.," I, 193, 196.
[3] Diefenbach, "Orig. Eur.," page 41.

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by their great stature, their white skins, and their yellow or red hair.[1] Pliny, Cæsar, Diodorus, Strabo, Silius Italicus, Claudian, Livy, Virgil, and Ammianus Marcellinus describe the Gauls as very tall, with white skins, fair or golden hair, and blue or blue-grey eyes.[2]

Throughout Southern Europe, in parts of Wales and Ireland, the blood is probably Iberian, while an Aryan language has been acquired from Aryan conquerors. The same process has gone on in the north.

Though the Lapps are certainly not of Finnic blood, they speak what seems to be an archaic form of the Finnish speech of Finland, while the tongue of the Samoyedes approaches that of the Ostiaks and other eastern Finns, though they cannot be classed as either Finns or Ugrians by race.

We have another argument, not without weight, as to the probabilities of migration.

There is no assignable cause which can have induced a race, physically superior in stature and energy, inhabiting the warm, sunny, fertile lands of Southern Europe where all the conditions of life are easy, to migrate to the inhospitable regions of Northern Europe, with a poor sandy soil, and a long winter, in which the struggle for existence is so hard; whereas there was every inducement for the hardy and prolific races of the north to invade and conquer southern lands.

The tendency to move southward is exemplified by the irruption of the northern nations into the Roman Empire, vast hordes of Goths, Burgundians, Vandals, Lombards, Sueves, and Franks, marching from the Baltic region into the fertile lands of Italy, Gaul, and Spain, where the descendants of the fair-haired giants were gradually absorbed among the shorter and darker races of those lands.

Sidonius Apollinaris describes the gigantic Burgundians of Gaul as seven feet high, and that this is not merely a poetical licence is proved by the huge skeletons found in the Burgundian graves of the valley of the Rhone.

The causes of the physical superiority of the Aryans is easy to understand, if we derive them from Northern Europe.

Temperate Europe was the school in which men were trained for work, and became superior in physical and mental energy.

With the Polar races the struggle was too difficult, and they succumbed. It was only just possible to support life; there was no room for physical development or for superior culture.

In high latitudes labour is only possible in the short summer; in low latitudes only in the winter. In the temperate zone

[1] Diefenbach, "Orig. Eur.," page 198. [2] *Ib.*, pages 161, 162.

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alone labour is possible all the year round, and hence the inhabitants of temperate regions have ever been distinguished by greater energy and superior physical development.

In historical times the Baltic lands have been the hive from which the pure Aryans have swarmed, and analogy leads us to expect that the same was the case in pre-historic times. In these lands men are prolific, while the means of subsistence are limited. The power of expansion of the Scandinavian and North German races is shown not only by the swarms of Teutonic invaders who overwhelmed the Roman Empire, but by the streams of Swedish, German, Dutch, and English emigrants who are now colonising North America, Australia, New Zealand, and South Africa, and who hold in fee so many tropical and sub-tropical lands. We also see that in the south the type rapidly dies out, or is absorbed. In India there are no pure-blooded Englishmen of the third generation, whilst the Goths have left little of their blue blood in Spain, Gaul, or Italy.

Moreover Sweden and Denmark have been always Aryan; the pre-historic skulls, whether of the stone, the bronze, or the iron age, are uniform in type. About 10 per cent. of the pre-historic skulls are of the Lapp type, which may be explained as a result of slavery; the rest belong to the pure Aryan type, which exists at the present day.

The first definite conclusion at which we arrive is, that while Aryan languages are spoken by six ethnic types—Scandinavian, Slavonic, Mediterranean, Keltic, and Irano-Indian—the purest of all in blood is the Scandinavian or North German, and that the primitive Aryans were of this type—a northern race, tall and fair, with blonde complexion, light hair, and blue eyes, who conquered southern, eastern, and some western lands, where, though their northern blood has been absorbed and obscured by the more numerous races whom they conquered, they succeeded in imposing their language, as is so often the case with a small ruling class. Witness the spread of the Latin language, which followed the subjugation of Spain, Gaul, and Northern Africa by the Romans, or the spread of the Greek language over the Empire of Alexander, or the still more remarkable case of the Arabic which has everywhere followed the crescent, and has exterminated Latin in North Africa, Greek in Asia Minor, Coptic in Egypt, and which is now rapidly extending over Africa to within a few degrees of the Equator.

So far I think we may accept Penka's argument. But it is more difficult to follow him in his contention that Scandinavia was the cradle of the Aryan race. This seems rather to have been the great European plain south of the Baltic. In such a matter we cannot expect to attain to certainty, but the balance

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of argument seems to lead to this conclusion. We have already seen that the linguistic evidence tends to show that the primitive Aryans inhabited some great plain, and not a mountainous region. It is difficult to understand how they can have crossed the Baltic in such vast numbers, while Scandinavia seems to afford neither the geographical space, nor the means of subsistence for their development. The tendency to albinism must also be explained, and the only physical explanation that has yet been advanced connects it with the poverty of colouring material in the barren sands of Northern Germany, and the western provinces of Russia. Here we find that the characteristics of the Aryan race has become so accentuated that the hair is almost devoid of pigment, it is nearly white, and the complexion is tallowy. We notice this tendency in some of the eastern counties of England, where the sandy soil is quite devoid of iron.

But the chief objection to Penka's Scandinavian theory is that it proves too much. It does not account for the origin of the Aryans, but rather assumes that the Aryans were always Aryans. *Ex nihilo nihil.* The Aryans must have had ancestors who were not Aryans. Who could those ancestors have been? Can we find any survivals or vestiges of this race?

My own opinion, arrived at independently, agrees with a conjecture which I find was put forth twenty years ago by two great scholars, Diefenbach and Weske—a conjecture which they did not attempt to substantiate by proof, because the materials for proof had not at that time been collected.

I believe that in the Finns of Finland, and the Esthonians and Liefs of Courland and Livonia, we discover, *in situ*, a people who can be shown, anthropologically and linguistically, to be the survivors of the race from which the Aryans were evolved.

When Diefenbach and Weske wrote, it was impossible to establish their conjecture. It was necessary to await the result of much patient labour in the analyses of the grammar and vocabulary of the Aryan and Turanian languages—a result which has now been achieved by Fick, Curtius, Schrader, Budenz, Donner, and Vambery, who have enabled us to reconstruct the elements of the original languages spoken 5,000 or 6,000 years ago by the ancestors, on the one hand of the Finns, and on the other of the Aryans.

The argument is two-fold—anthropologic and linguistic. I shall first endeavour to show that ethnologically the Finns proper are of the same ethnic type as the contiguous Aryans of Northern Europe. Penka, whose object is to prove that the Aryans are unique in physical type, endeavours in vain to

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combat the conclusion of Virchow, that in all essential characteristics the Finns of Finland belong to the Aryan type.

He is driven to the argument that the marked Aryan characteristics of the Finns are due to an inter-mixture of Aryan blood, which is contrary to all probability, since language changes more readily than race; since with an inter-mixture of blood the dark, short race is prepotent, and the mixed race is dark; while it is most unlikely that the superior race should have been so numerous as to have imparted its physical character without also imparting its language.

Geiger also says that fair hair, white skin, and blue eyes are ethnic characteristics confined to the Ayran race, with the exception of the Finnic neighbours of the Aryans.[1] He, like Penka, accounts for the fact by an intermixture of Aryan blood. The Aryan type of the Finns is recognised fully by independent authorities who have no theory to support. Diefenbach states[2] that anthropologically the Finns belong to the Aryan type rather than to the Mongolic or Ugric. The European Finns he says, resemble the Aryans of Northern Europe. The Finns of Finland are fair and tall, with blue eyes. The Esthonians have blue eyes and yellow hair, and are dolichocephalic.

This was the case in early times. From the Edda we learn that the Scandinavians called their Finnic neighbours Jötuns, or giants, proving that they were of even taller stature than themselves. The same was the case with the Slaves, who also at a very early period found the Finns a taller race than themselves, as is evident from the fact that by all the Slavonic races the Finns are called Tschuds, a name derived from the Slavonic word *tcud*, a giant.[3] Virchow, noting the light hair and blonde complexion of the Finns, has pointed out that the Finns are not, as was formerly thought, brachycephalic, but largely dolichocephalic. Of the Esthonians one-third are of the blonde dolichocephalic type, and two-thirds are mesocephalic, with light brown or darker hair. The cranial index of the Finns is 78·59; of the Tschuds, 83·37; of the Magyars, 82·2.

According to Diefenbach, as we go eastward the races speaking languages of the Finnic family diverge more and more from the Finnic type. The blonde hair becomes red, and the skin and eyes become darker. Thus while the Wotiaks, Mordwins, and Tscheremis have red hair more frequently than brown, and some Ostiaks have reddish hair, the Woguls and eastern Ostiaks are darker both in skin and hair.[4] The Ostiaks on the Obi, Diefenbach thinks,[5] though speaking a Finnic tongue,

[1] Penka, "Orig. Ar.," page 30.
[2] Diefenbach, "Orig. Europ.," page 213.
[3] Ujfalvy, "Mélanges," page 120.
[4] Diefenbach, "Orig. Europ.," page 213. [5] *Ib.*, page 209.

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cannot be considered as pure Finns, having probably an infusion of Samoyedic blood. But this is no difficulty, as the same phenomenon meets us among the Aryans, the type, as we proceed from Northern to Southern Europe changing from fair to dark, just as among the Finnic races it changes from yellow to red, and red to dark, as we go eastward.

Thus there is a gradual gradation in language and physical type, from the Finns, whose language is almost inflectional, and whose type is Aryan, to the Ostiaks whose language may be classed either as Finnic or Ugric, and then through the Ugric tribes to the Tschuwash, whose speech is midway between Ugric and Turkic. In like manner the Turkic tribes gradually approximate to the Mongolic. There is a similar gradation among the Aryans from the Lithuanians to the Germans, the English, the Kelts, and the Latins.

It is thus possible to pass from the Mongols to the Tatars, from the Tatars to the Ugrians, from the Ugrians to the Finns, from the Finns to the Teutons, and from the Teutons to the Kelts and the Latin races. Nowhere is there any great gulf, but rather an inclined plane of race and language.

But this does not affect the fact that the pure Finnic race in Finland and Esthonia is tall, fair, and blue-eyed, just as the pure Aryan race in Scandinavia and Northern Germany is also blue-eyed, tall, and fair.

We must remember that language is unstable, while the ethnic type remains constant. In Babylonia the type remains, though the language has changed from Accadian to Semitic, and from Semitic to Persian, Greek, and Arabic in turn. The same is the case in Asia Minor and Syria, where the ancestors of the present population have spoken Hittite, Aramean, Greek, and Arabic, while in Egypt Coptic has been replaced by Greek, and Greek by Arabic. In Southern Europe Sicily and Spain present similar phenomena.

It may be affirmed that, except the Finns, there is no race existing in the world from which the northern Aryans could have derived their unique physical characteristics; and that there is no language except the Finnic from which the Aryan speech could have been developed.

Either the characteristics of the Finns must have been derived from the Aryans, or the characteristics of the Aryans from the Finns. The first is the contention of Penka—the second is my own.

Language changes more readily than race, and if the Finns had received such an overwhelming infusion of Aryan blood as to change the type from dark to fair, from black eyes to blue, from short to tall, from brachycephalic to dolichocephalic, it is

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strange indeed that the language of the higher race should not also have replaced the language of the lower race. Penka's contention, in short, amounts to this, that the Finns are really an Aryan race, who, in some way, have acquired a language of the Altaic type. This seems quite incredible, and it is far more reasonable to suppose that the Finns are rather the survival of the race from which the Aryans sprang, a survival due to their isolation in the inaccessible marshes of Finland, which, so far as we know, they have always inhabited.

But this Finnic race was once far more extensive. It has continually been encroached on, more especially by Slaves, who, though speaking an Aryan tongue, are themselves mainly of Finnic or Ugric blood. The process of assimilation is still rapidly proceeding. Castren thinks that in the time of Tacitus the Finns extended uninterruptedly from the Ural to the Baltic. He arrives at this conclusion from the evidence of Finnic place-names in Russia, and from the fact that in Nestor's time there were many Finns in parts of Russia from whence they have now disappeared.

That the region south of the White Sea, the land of the Biarmians, was once Finnic, has been proved by Ujfalvy from the evidence of place-names and from the numerous Finnic words incorporated into the Russian dialect of the department of Archangel.

The Esths still occupy the land of the Aestiæi of Tacitus, who inhabited the amber land of the Baltic, and the Finns are believed by Zeuss to be the Fenni of Tacitus, and the Finnoi of Ptolemy.

According to Diefenbach the Finns once stretched far to the south in Europe, as well as to the north and east, having been pushed back, or more probably absorbed, by the Aryans, but they still range in almost unbroken order as far as the Finno-Ugric tribes of Asia.

This Finnic race, formerly so widely spread over Northern and Eastern Europe, exhibits in its highest development the same ethnic type as those Aryan races who seem to have the best title to represent the primitive Aryan type. At all events there is no other ethnic type from which the Aryans can so reasonably be derived. The Aryans must have sprung from some other race in an inferior linguistic and social stage. From what race? Plainly from a white race, a northern race, and a race whose language approaches their own. They could not have sprung from a Semitic stock. The type is altogether different. The Semites have an aquiline nose, black hair and eyes, and an oval face. Their language, though inflexional, is fundamentally different, and there can be little doubt that the Semites origi-

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nated in Northern Arabia. The other great families of mankind, the Mongolic, the Turkic, the Negroid, the Berber, and the Egyptian, present equal or greater difficulties. The choice seems to lie between the Iberian and Finnic stocks, if, indeed, these were not fragments of the same family separated by intrusive Aryan peoples.

But if we accept the reasonings of Penka and others as to the primitive Aryan type, and Fick's reasoning as to the northern origin of the Aryans, we must give the preference to the Finnic rather than to the Iberic race, as the Aryan mother stock.

If this be so, if the Aryans are an improved race of Finns, then Finnic speech ought to exhibit signs of being the mother tongue from which the Aryan languages were developed; or, conversely, the Finnic ought to be a survival of the ruder holo-ethnic speech from which the Aryan was developed.

Is this possible? Can the inflexional Aryan languages have arisen from the agglutinative Finnic speech?

This, I think, is possible. Prof Max Müller, who must be regarded as a hostile witness, since he believes that the Aryans originated in the highlands of Central Asia, observes, "we might almost doubt whether the grammar of this language (Finnic) had not left the agglutinative stage, and entered into the current of inflexion with Greek and Sanskrit."[1]

Prof. Max Müller is plainly conscious that in the Finnic speech we find a point of closer linguistic approximation to the Aryan languages than can elsewhere be discovered. The approximation is still more evident if we compare two languages in geographical contact, the Esthonian, the most advanced of the Finnic languages, and the Lithuanian, the most backward of the Aryan.

The Lithuanian, the most archaic type of Aryan speech, is spoken in the Baltic provinces of Russia and in the adjacent regions of East Prussia. It has been much encroached upon, and has been supposed at one time to have extended as far as the Danube. It is now in geographical contact with the Esthonian. We find, therefore, side by side, still dwelling in their primitive seats, the Esths, the members of the Finnic family who are most advanced in civilisation, in physical type, and in language, and their western neighbours the Lithuanians, who speak the most archaic of all living Aryan languages.

In this region, therefore, if Aryan speech was developed out of Finnic speech, we may look for evidence of the transition between the Finnic and Aryan languages.

[1] Max Müller, "Lectures," I, page 319.

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In what points should we expect to be able to trace this original linguistic identity, if it existed?

The separation must have been at so remote a date—at the least 5,000 years ago, probably much more—that we cannot expect to find any very evident traces of a common vocabulary. It is true that there is a large number of common words, but these, as Ahlquist has shown, cannot be taken into account since they are mostly *Kultur-wörten*, borrowed by the Finns at a time long subsequent to the separation, and they are moreover words denoting a higher stage of culture than was reached when the separation of the Aryan races took place. Such, for instance, as the words for lead and tin, for the anvil, agriculture, for ships, for woven garments, and, in all probability, for the horse. These are the same in Finnic and Aryan speech, but they cannot be taken into account as they are plainly loan words, and are only found among the western Finns, while their origin can be traced without difficulty to some contiguous form of Aryan speech, usually Scandinavian, Slavonic, or Lithuanian. But it is entirely different when we come to another class of words, those denoting the primary relations and necessities of existence, such as the words for father, mother, son, daughter, brother, sister, which are common to the European-Asiatic branches of the Finnic race. The same is the case with some of the numerals, and with some of the primary necessaries of life, salt, shelter, food, the rudest tools, and two of the metals, gold and copper. But when we go still deeper, when we go back to the very oldest traces of linguistic affinity, then the relationship becomes more plain. When we analyse the verbal roots, the pronouns, the structure, the formatives, and the fundamental conceptions of grammar, then the linguistic resemblance—I may almost say the linguistic identity—comes out with startling plainness. Borrowing is here out of the question, because the resemblance is so deep-seated; it is a resemblance not of words, but of roots, of grammatical structure, of pronouns, of demonstratives and relatives, and of formative suffixes. That not only the verbal roots and stems, but that the pronominal suffixes of the first, second, and third persons of the verb should be ultimately the same, that the formation of the nominative, genitive, and accusative should be analogous, argues, not borrowing, but a primitive unity.

This cannot be affirmed of the Aryan and any other family of speech. There is no such fundamental community as to the first elements of speech between the Aryans and any other race, Semitic, African, or Turkic. The Finnic language is the bridge between the languages of Asia and Europe. In their structure they hold on, with one hand, to the Ugric, Turkic,

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and Mongolic, less advanced than themselves; while with the other hand they grasp the more Aryan languages. We have the connecting link between the speech of Northern Asia and of Northern Europe. In the Baltic provinces we find a common point of contact between languages so diverse as Turkish and Teutonic. The vowel harmony and the relics of agglutination link them with the Turkic tongues; the inflectional grammar, the formatives and the roots link them with the Aryan languages.

The only assignable argument for the now exploded theory which places the primitive Aryan home in the highlands of Central Asia was the supposition, now shown to be erroneous, that Sanskrit presents us with the most archaic type of Aryan speech. This belief is now generally surrendered in favour of that advocated by Pösche and others, that the Lithuanian rather than Sanskrit, comes nearest to the Aryan *Ursprache*. If this is the case, as is now generally admitted, all the arguments which brought the primitive Aryans from the head waters of the Oxus, where the Iranian and Sanskrit peoples separated from each other, become arguments for placing the original Aryan home in proximity to the region now occupied by the Lithuanians.

In comparing Finnic and Aryan grammar I will first give an outline of the results set forth in a remarkable paper by Weske, *Ueber die historische Entwickelung der finnischen Sprachen in Vergleich mit der der Indo-germanischen.*

The chief difference, he observes, between Turanian and Aryan speech is that the one is agglutinative while the other is inflexional.

The Finnic is the most advanced of the agglutinative Turanian languages. Though connected with them by the roots, grammar, and formatives, yet the suffixes are almost as firmly united to the roots in Finnic as in Lithuanian or Sanskrit. The structure of the Finnic languages cannot, on the one hand, be divided by a sharp line from Turkic, or on the other by a sharp line from Aryan. Finnic is the link which unites them both.

We may take Sanskrit and Lithuanian as two of the more archaic Aryan languages and compare the method of word-building from the verbal root with the same process in Suomi and Esthonian, two of the most advanced Finnic tongues. The formative *ma* is employed in Aryan and Finnic with the same signification. In Finnic, combined with the verbal root *san*, to say, it gives *san-o-ma*, a message; with the root *juo*, to drink, it gives *juo-ma*, drink; with *tek*, to do, it gives *tek-e-ma*, a deed. In Aryan languages the combinations are identical; in Sanskrit, from the verbal root *ghar*, to burn, we have *ghar-ma*, warmth,

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from *dhu*, to move, we have *dhu-ma*, smoke; in Lithuanian from *vaz*, to carry, we have *vaz-ma*, carriage, from *aud*, to weave, we have *aud-i-ma*, a web, and in Latin from *fa*, to say, we have *fa-ma*, a report.

Here the same suffix is seen to be bound as tightly to the verbal in Finnic as in Aryan, the method of formation is identical, and the suffix is common to both. The comparison might be extended to other formative suffixes which are employed both in Aryan and Finnic languages, such for instance as *na*, *ja*, *va*, *la*, *ka*, and *ta*. Thus, to take an instance or two, we have in Finnic the formative *na*, which combined with the verbal root *koh*, to drink, gives *koh-i-na*, drunken; while this suffix combined with the verbal root *svap*, to sleep, gives in Sanskrit *svap-na*, sleep, and in Lithuanian *sap-na*, sleep. Or take the formative *ja*, which in Finnic from *lug*, to read, gives *lug-e-ja*, a reader, and in Lithuanian from *sta*, to stand, gives *sta-ja*, a position, or place.

We may next examine the pronominal suffixes which are suffixed to the verbal roots for the conjugation of the verb. Prof. Donner has shown that in Finnic, the primitive pronominal suffixes were *ma* for the first person, *ta* for the second, and *sa* for the third. Now *ma* is the pronoun "I" or "me," both in Aryan and Finnic languages, and thus an Esthonian who says *ma*, I, is speaking Aryan as well as Finnic. In modern Aryan languages, as well as in Finnic, this suffix has sometimes become *-m* or *-n*, or has even disappeared altogether. Let us now compare the conjugation in Aryan and Finnic languages. From the Sanskrit verbal root *vah*, to carry (*cf.* Latin, *veho*), we have *vah-a-mi*, I carry; and from *bhar*, to bear, we have *a-bhar-am*, I bore (*cf.* Greek, *ἵ-στη-μι* and *ἔ-φερ-ον*). In Lithuanian we have *es-mi*, I am, in Old High German *tuo-m*, I do, and *ga-m*, I go, which in New High German have become *thu-e* and *geh-e*. In Finnic the same suffix *ma* has undergone the same changes. Thus in Tscheremis "I come" is *tola-m*, in Suomi *tule-n*, in Esthonian *tul-e*. "I live" is *ăle-m* in Lapp, *ale-n* in Suomi, *el-ä* in Esthonian.

So, also, with the pronominal suffix of the second person. In Suomi we have *tule-t*, thou comest, the *t* being derived from the pronoun *ta*, thou, just as in Aryan languages the suffix *s* is derived from *tva*, thou, as in the Sanskrit *bhára-si*, thou bearest.

The plural pronominal suffixes differ somewhat in Aryan and Finnic, owing, as will hereafter be shown, to the plural having orginated after the separation of the Aryan from the Finnic races, but the identity of the plural and pronominal signs is curious. In Finnic, the plural pronominal suffix of the first person is *m-me*, as *tule-m-me*, we come. The first *m* arose out of

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n, due to the disappearance, as Budenz holds, of *t*, the plural sign. In Aryan the suffix of the first person plural is *ma-s* (= *ma-si*), compounded of *ma*, I, and the plural suffix. In Finnic the suffix of the second person plural is *t-te* (as in *tule-t-te*, ye come), compounded of the plural suffix *t* as before, and *ta* thou. In Aryan the suffix was originally *ta-si* from *ta*, and the plural suffix. We see the Finnic plural suffix *t* which was probably the archaic form of the Aryan plural suffix *s*. It will be noted that the order of the signs of the plural and the pronoun is different in Aryan and Finnic. They were independently formed, after the separation of the races, but the materials out of which they were formed were identical.

It is the same with the declension of the noun. The case signs in Finnic arose out of suffixed prepositions as in Aryan languages. We have the ablative in *-t*, the genitive in *-n*, and the accusative in *-m*. Thus in Tscheremis we have the accusative *vida-m*, water, from the stem *vid-a*, water, and in Sanskrit *pati-m*, master, from the stem *pati*.

In Aryan, as in Finnic, there are internal vowel changes in the stems as in Finnic, but these, probably, may date from a later period.

I feel bound to give full prominence to the two strongest arguments against the primitive identity of the Finnic and Aryan tongues, arguments that to many will, perhaps, seem conclusive against my contention.

These arguments are morphological, and seem to go down to the very foundations of grammar.

They are, first, that the Finnic languages, like the rest of the Turanian class, possess no gender; and, secondly, that the sign of the plural is inserted between the stem and the pronominal or postpositional suffixes, instead of after them, as in Aryan languages. This is also the case with Georgian, where *bi* or *ni*, the plural sign, is inserted between the root and the case endings.

I am inclined to believe that these two peculiarities of Finnic grammar, instead of being fatal to my proposition, afford a very curious confirmation of some speculations of Prof. Sayce, as to the earliest form of Aryan speech, and, therefore, if his speculations be sound, they afford a remarkable confirmation of my theory. Not only has gender been lost in two Aryan languages, English and Persian, but Prof. Sayce considers that gender did not exist in the primitive Aryan speech, in which case its absence from Finnic is only an additional proof that Aryan was derived from Finnic. In his article on grammar in the "Encyclopædia Britannica," Prof. Sayce observes that "Gender is the product partly of analogy, and partly of phonetic decay."

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"There are many indications," he continues, "that the parent Aryan, at an early stage of its existence, had no signs of gender at all." "The terminations of father and mother, *pater* and *mater* for example, are exactly the same." "Feminines like *humus* and ὁδός, or masculines like *advena* and πολίτης, show there was a time when these stems indicated no particular gender, but owed their subsequent adaption, the one to mark the masculine, and the other to mark the feminine, to the influence of analogy." If this reasoning is correct, and I confess I do not see any flaw, we should expect to find the parent Aryan genderless like the Finnic.

If Prof. Sayce is right, the very fact that Finnic is without gender, is one reason the more why we may look to Finnic as the parent of Aryan speech.

The same reasoning holds as to the difference in the formation of the plural. Prof. Sayce considers that in the primitive Aryan speech there was no plural, but only the singular and the dual. Now, though the plural is differently formed from the same elements in Aryan and Finnic, the dual is formed in precisely the same way. Hence I take the different formation of the Aryan and Finnic plural to be a sign of primitive unity. Prof. Sayce says[1]: "We might think the roots of the plural go down to the beginnings of language, but it is not so." He thinks this is proved by the existence of the dual, which would have been needless if the plural had been in existence, as we see by the fact that the existence of the plural has caused the dual to be dropped. "The dual," he says,[2] "was older than the plural, and after the development of the latter, survived only as a useless encumbrance, which most of the Aryan languages contrived to get rid of." The same was the case with the Finnic languages, which originally had a dual, as proved by its existence in Ostiak, Lapp, and Samoyed, but the more cultured languages have got rid of it. Now, the curious point is that, though the Aryan and Finnic languages differ fundamentally in the formation of the plural, they agree precisely as to the formation of the dual.

The Aryan dual is believed to have been formed by two suffixed pronouns, *as-ma* (= I + he) being equivalent to "we two," and *tas-ma* (= thou + he) = ye two. In like manner Pott considered the Samoyed dual was originally equivalent to I + he, and the same holds probably of Ostiak and Lapp. The dual suffix in Finnic follows the case ending and pronominal suffix as in the Aryan languages.

[1] Sayce, "Principles," page 258.
[2] "Encyclopædia Britannica," article Grammar.

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In the Finnic languages the dual is formed like the Aryan dual. The case ending comes first, and the sign for the dual after it.

But the Aryan and Finnic languages must have separated when they were in the stage which Prof. Sayce assigns to the oldest Aryan speech, that is, when they possessed only a singular and a dual.

In both the plural was a subsequent formation, and was formed in Aryan on the model of the dual, either by the addition of a plural suffix, or as some grammarians hold, by an intensification of the dual, while in Finnic it was formed by a plural suffix *t* inserted before the pronominal suffix. The singular and plural were regarded as independent words, and the suffixes were tacked on, just as in English we tack on the sign of the genitive in such words as *man* and *men*, *e.g.*, "the man's boots," and "the men's boots," a formation which corresponds exactly to the formation in the Finnic languages.

I maintain, therefore, that the two chief fundamental differences between Aryan and Finnic grammar, namely, gender and the plural, instead of being proofs of primitive diversity, are, in the light of the most recent speculations, convincing proofs of primitive unity, and also that Finnic grammar is able to cast unexpected light on the primitive grammar of the holo-ethnic Aryan race.

The grammar of such a Turanian language as the Turkish seems to have no points of agreement with the grammar of the more advanced Aryan languages, such as Persian or English, but the grammar of the more advanced Finnic languages, such as Suomi or Esthonian is not far removed from that of the more archaic Aryan languages such as Sanskrit or Lithuanian, and hence the Finnic forms the link between Aryan and Turanian speech. We find a gradual progression from Buriat through Yakut and Uigur to the Tschuwash, which are all languages of the Turko-Tatar class. The Tschuwash is not very far removed from the Ugric branch of the Finnic tongues, so that through Magyar, Ostiak, Wogul, and Mordwin, we reach the Suomi and Esthonian, through which we get the transition to Lithuanian and Sanskrit, which are inseparable from the Keltic, Latin, Greek, Slavonic, and Teutonic tongues. Just as the Finnic is a development of the Turkic, so the Aryan is a development of the Finnic *Ursprache*.

Twenty years ago when Weske pointed out the grammatical analogies between Finnic and Aryan, he refrained from affirming that they point to a single primitive *Ursprache*, because at that time the primitive verbal roots of the Finnic language had not been determined. This, however, has now been done by

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Budenz, Donner, and Vambery, and we can carry Weske's argument a step further, and show not only that the grammar is fundamentally identical, but the primitive roots, the *Stoff* out of which the vocabularies have been manufactured, is the same.

To demonstrate this proposition would require a volume. I will take one leaf only out of the book, as a sample of the rest. It will be better to examine thoroughly a small portion of the domain, than to scamper over the whole ground. Lest I should unconsciously pick my evidence, I will take a few roots in consecutive alphabetical order. Prof. Skeat, in his "Etymological Dictionary," has given a list of 461 primitive Aryan roots, mainly from Fick. Of these I have taken the 18 triliteral roots in *k*, Nos. 41–58, and have compared them with the Finnic *k*-stems in Donner's *Vergleichendes Wörterbuch der Finnische Sprachen*, Nos. 1–338.

I have taken the triliteral roots because the biliteral roots are too general and vague, and the quadriliteral too modern, having largely been developed after the separation of the Aryans and Finns. They are properly stems rather than roots.

The resemblance, nay, the identity is most surprising. Every one of these 18 triliteral Aryan roots in *k* is also found in Finnic with the same meaning. It is perfectly impossible that the resemblance in so many cases can be accidental. And they cannot be loan words, as they extend to the Asiatic languages of the Finnic class, as well as the European languages which are in contact with Aryan languages. They belong, therefore, to the Finnic *Ursprache*.

Comparison of Verbal Roots in Aryan and Finnic.

Aryan Roots.	Finnic Roots.
1. √KAK, to cackle, laugh, make a noise (Skeat, No. 41). Hence *cackle*, *cock*.	1. √KAK, to cackle, make a noise (Donner, Nos. 20–25). Hence Finnic *kaik-la*, to sound, *kaj-an*, to sound, *kuk·kua*, to cackle, *kuk*, a cock, *gag-o*, a stork.
2. √KAK (=*hag*) to gird, surround (Skeat, No. 42). Hence *hook*, *haken*, *hedge*; German *hals*.	2. √KAK, to bend round (Donner, Nos. 2–13). Hence Finnic *kok*, a hook, *kak-la*, neck.
2A. √KAK, to excrete (Fick). Hence Latin *cacare*; Greek κακκή; Irish *cace*, excrement.	2A. √KAK, to excrete (Donner, No. 24). Hence Finnic *kak-ka*, excrement.
3. √KAK, to waver, hestitate, be in doubt (Skeat, No. 43). Hence Latin *cunctor*; Sanskrit *canc*, to hesitate.	3. √KAC, to observe, look at (Donner, Nos. 69, 70.) Hence Finnic *kac-on*, to prove, try, look at.
4. √KAT (=*hath*), to cover, protect (Skeat, No. 44). Hence *hat*, *heed*, *hut*.	4 √KAT (=*kant*), to cover (Donner, Nos. 33–34). Hence Finnic *kat-to*, a roof, *kot-a*, a house; Magyar *haz*, a house (?).

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ARYAN ROOTS.

5. √KAD (=*hat*), to fall, go away (Skeat, No. 44 *a*).
Hence *cadence*; Latin *cado*.

6. √KAD (=*hat*), to fell, throw down (Skeat, No. 44 *β*).
Hence Sanskrit *cat-aya*, to throw down; English *hunt*, *hand*.

7. √KAN, to sing, to ring (Skeat, No. 46.
Hence Latin *cano*, *gemo*.

8. √KAP (=*haf*), to contain, hold, seize, grasp (Skeat, No. 47).
Hence Sanskrit *cap-ala*, shell, skull; Greek κεφ-αλή; Latin *cap-ut*; English *cup*; Latin *cap-io*; English *cap-acious*.

9. √KAP (=*kamp*), to move to and fro, vibrate, bend (Skeat, No. 48).
Hence Greek κάπτω; Keltic *cam*, bent.

10. √KAM (=*ham*), to bend (Skeat, No. 49).
Hence *camera*, *chamber*, *ham*, *combe*, *hump*, *kink*; Lithuanian *kampas*; crooked; Greek καμπή.

11. √KAM, to love (Skeat, No. 50).
Hence Latin *amo*; English *home*.

12. √KAR, to make work, do (Skeat, No. 51, Fick III, p. 521).
Hence *carve*, *create*, *ceremony*, *autocrat*.

13. √KAR (=*har*), to hurt, destroy (Skeat, No. 54).
Hence Latin *gladius*; English *harry*.
(The Finnic shows that this is the same as No. 12).

14. √KAR or KAL (=*har*) to move, run, speed (Skeat, No. 52).
Hence *cel-er*, *car-riage*, *hor-se*, *curro*, *cor-acle*.

15. √KAR (=*hal*), to project, stand up (Skeat, No. 53).
Hence Latin *collis*, *culmen*, *cul-mus*, *celsus*; English *haulm*, *holm*.

16. √KAR (=*har*), to be hard or rough (Skeat, No. 55).
Hence Greek κέρ-ας, a horn, καρκινος, a crab; Latin *cor-nu*; English *horn*, *hart*.

FINNIC ROOTS.

5. √KAT, to fall (Donner, No. 47).
Hence Finnic *kat-a*, to fall down.

6. √KAT, to seize (Donner, Nos. 50, 51, 61–64).
Hence Finnic *kat-e*, hand; Ostiak, *katt-em*, to seize; Finnic *kat-ken*, to break off; Tscheremis *kat*, to tear off.

7. √KAM, to resound, to ring (Donner, Nos. 321–331).
Hence Finnic *kim-ea*, sounding, *kumea*, resonant; Permian, *gim*, thunder.

8. √KAP, to seize, hold, contain (Donner, Nos. 273, 279, 281).
Hence Finnic *kap-ia*, to snatch, *kapan*, to seize, *kop-et*, to excavate, *kuppi*, a cup, *kap-io*, a helmet, *kop-aska*, skull, *kop-pa*, forehead.

9. √KAP, to hasten, knock, bend (Donner, Nos. 265–286).
Hence Finnic *kap-un*, to hasten forward, *kop-utan*, to knock, *kap*, bent.

10. √KAM, to bend (Donner, Nos. 308, 320, 15–18).
Hence Finnic *kam-ma*, a sleeping room, *kum-pu*, a small hill in a marsh, *kank*, bent, *kampura*, crooked.

11. √KAM, to love (Donner, No. 351).
Hence Finnic *heimo*, family race, *aim*, home, domestics, *hämo*, relations; Wogul *kant*, family; Mongol, *aim-ak*, family.

12. √KAR, to work, cut (Donner, No. 161).
Hence Finnic *ker-an*, to hew, punish; Syrianian *kar-ny*, to make, *kur-as*, a knife, *kar-at*, a plough, *kur-at*, the evil spirit.

13. √KAR, to injure (Donner, Nos. 161, 186, 189).
Hence *kar*, sharp, *kur-i*, punishment, *kur-at*, the evil spirit, *kar-sin*, to suffer, *kor-set*, to injure, *kar-was*, herb, bitter.

14. √KAR, to run (Donner, Nos. 133, 216, 217).
Hence Finnic *kar-an*, to run, jump, *ker-ap*, a carriage, *kar-bes*, a boat. *Cf.* √KAL, to flow, to go. Hence Turkic *gel*, a river; Mongol *gol*, a river.

15. √KAL (=*kul*) to stand up, to project (Donner, Nos. 221, 222).
Hence Finnic *kol-lo*, a point, summit, *holm*, a hill, *kor-si*, haulm, *kor-si*, *kur-o*, straw.

16. √KAR, to be rough, sharp, (Donner, Nos. 125–50).
Hence Finnic *kar-a*, a bough, *ker*, iron, *gör*, a plough.

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Aryan Roots.	Finnic Roots.
17. √KAR (=*har*), to curve or roll (Skeat, No. 56). Hence *cir-cle*, *cor-ona*, *crown*, *curve*, *gar-den*, *hor-tus*, χορός, χορ-τος; Sanskrit, *kri-mi*, a worm; Keltic, *cru-im*, a worm; Latin *vermis*.	17. √KAR, to curve (Donner, Nos. 165–178). Hence Finnic *ker-i*, a circle, *ker-i*, a wheel, *kar-i*, a bow, *kar-tano*, a court, farmyard, *gar-dde*, a cattle-stall, *kär-me*, a snake.
18. √KAR (=*har*), to turn (Skeat, No. 57). Hence Latin *car-bo*, English *car-bon*, *hearth*, *kil-n*.	18. √KAR, to burn (Donner, No. 149). Hence Finnic *kar-tuan*, to burn.
19. √KAR (=*kal*, *hal*), to call, exclaim, cry out (Skeat, No. 58). Hence Latin *clamo*; English *call*.	19. √KAR, to cry (Donner, No. 164), *Cf.* √KAL, to howl or cry.

Here are 19 of Skeat's ultimate Aryan verbal roots, not selected, but taken consecutively as he gives them, which are identical in meaning and sound with 19 of Donner's ultimate Finnic verbal roots.

It is absolutely impossible that the coincidence should be accidental. The test fairly applied, proves that the Aryan and Finnic languages were manufactured out of the same materials.

The resemblances could have been exhibited in a more striking form by taking the Aryan roots as given by Fick, whose analysis goes deeper, but I have taken those given by Skeat because they are more accessible, and because the alphabetical order in which he gives them precludes any possibility of cooking the evidence.

A few more selected roots may be added to the foregoing st:—

Aryan Roots.	Finnic Roots.
20. √KAS, to cough (Skeat, No. 68.)	20. √KAS, to sneeze, to cough (Donner, No. 96).
21. √KAS, to bless, praise (Skeat, No. 66.) Evidently a secondary sense of 20.	21. √KAS, to praise (Donner). Hence Finnic *cas-en*, to command, *kazin*, to promise, *koz-mala*, *koz-oni*, to thank, to bless.
22. √KAR, to bound along, speed. Hence *has-te*; German *hase*, hare.	22. √KAS, to speed (Donner, Nos. 94, 107). Hence Finnic *kas-ka*, quick, *koz-el*, a spinning wheel, *kos-k*, a torrent.
23. √KER, to swell out, to be hollow (Skeat, No. 74). Hence *coelam*, *cave*.	23. √HUH, to swell out, and √KUV, to be bent or hollow (Donner, Nos. 121, 122, 292–299). Hence Finnic *kuov-at*, to excavate, *kav-a*, belly, *kav-is*, hoof.
24. √GAL (=*kal*), to freeze, be cold (Skeat, No. 99).	24. √KAL, to be cold (Donner, Nos. 200–214).
25. √VAD, to be wet. Hence English *wet*, *wade*.	25. √VAD, to be wet. Hence Mordwin *vad*, water; Tscheremis *vid*, water; Magyar, *viz.*, water; Esth *vessi*, water; Suomi *vesi*, water.

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I would only notice that the Aryan did not separate from the Finnic language before the secondary meaning of some of these roots had been developed. Thus in Aryan and Finnic *kas*, to sneeze, had developed the meaning of "to bless"; *kak*, to bend, had developed the meaning "to excrete"; *kar*, to do, had become *kar*, to work evil, to injure; and *kal*, to cry out, and *ken*, to sing, had become *kam*, to love.

Moreover the Finnic roots often throw valuable light on obscure Aryan etymologies, and make it possible to classify the ultimate Aryan roots in a way which otherwise would be impossible.

Not only are the verbal roots and the grammatical structure identical in the Aryan and Finnic tongues, but those primitive words which are usually common to related languages, and which cannot, like culture words, have well been borrowed. Such words are those denoting the primary relations of life—the pronouns and the numerals.

That the pronouns are substantially identical I have shown in examining the pronominal suffixes of the verb, which exhibit the pronouns in their oldest forms, and I will, therefore, pass on to the words denoting the fundamental relationships of life, words for father, mother, uncle, aunt, son, daughter, brother, and sister—words which, as Diefenbach affirms, show identical primitive racial affinities, and not contact—words which he goes on to say penetrate into the primitive structure of all the Turanian languages, and vary according to phonetic laws in a host of dialects, showing a deviation from the primitive Turanian *Ursprache*—words like *suser* for sister, used not only by the European Finns, but by the Eastern Finns on the Wolga, and by the Wotiaks on the Arctic Ocean, and which in no conceivable manner could have been derived by those distant tribes from the German *Schwester*.

I do not attach so much importance to the words for father and mother, as these being the easiest words for children to pronounce may be the same in unrelated languages.

We may, however, compare the Aryan *mama*, mother, with the Esthonian *ema*, mother, the Ostiak *ima*, wife, the Magyar *eme*, woman, the Karelian *maamo*, mother, and the Syrianian *mam*, mother.

We may also compare the Suomi *taatt*, father, the Esthonian *taat*, father, with the Indian *tata*, Greek τάτα, Gothic, *atta*, and the English and Keltic *daddy* and *dad*.

Still more to the point are the words for son and daughter.

We have in Syrianian *pi*, son, in Magyar *fiu*, son, in Ostiak *poh*, son, Suomi *poig*, boy, in Esthonian, *pois*, *pojn*, boy, which may be compared with Greek παις, our *boy*, Greek ὑιος, and

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Latin *fi-lius.* In Suomi we have *tytär*, daughter, and the words *tytto, tytar*, for daughter, run through the Finnic languages, and can hardly have been borrowed from the Aryan, since *tuta* means "elder sister" in the Tatar languages.

With the Finnic *sõzer*, sister, we may compare the Lithuanian *sesser*, the Sanskrit *svasar*, the Gothic *svistar*, and the Slavonic *sestra.*

The Aryan and Finnic stem *martya, mard*, denoting *homo*, has penetrated so deep into the Finnic languages that it has become the base of the ethnic name of the Mordwins, "the men." *Homo* is *mort* in Syrianian, *mart, mort, murt*, in the Permian dialects, and *murd* in Wotiak. The Latin *vir* is *mirda* in Mordwin, *mara* in Tscheremis, and *feig* in Magyar, *mes* in Olonez, *mees* in Esthonian, *mios* in Tschud.

In Esth and Lithuanian *mes* is husband, in Suomi *mies* is husband, which may be compared with the Latin *mas.* With the Latin *vir* the Lettish *virs*, and the Lithuanian *vyras* we may compare the Syrianian *verõs*, husband, Magyar *ur*, husband.

With the Latin *mulier* and Italian *moglia*, a wife, we may compare Finnic *muija*, wife.

With the Latin *maritus* and our *marriage*, and Lithuanian *marti* (genitive *marzcicos*), a bride, compare Finnic *morsian*, a bride.

With the Finnic *nepa*, a nephew, we may compare the Iranian *napat*, nephew, the Anglo-Saxon *nefa*, a nephew, Old High German *nefo*, Latin, *nepos*, Sanskrit, *napat.*

Not only do the names of these relationships correspond, but a primitive identity in the numerals up to ten may probably be traced. In most cases the ordinary numerals differ in Aryan and Finnic, but there are traces of older numerals which seem to agree.

Thus, the ordinary Finnic 10 is *kume, kumen*, or *kymmenen*, but we have a relic of an older 10.

The Syrianian *das*, 10, and Magyar *tiz*, 10, which are related to Latin *decem*, as is shown by the Esthonian, in which *ut-tesa* is 9 (*i.e.*, 10—1) while *kat-tesa* is 8 (*i.e.*, 10—2).

Here plainly *tesa* denotes 10. Now in Suomi *yh-deksan* is 9 (10—1), *kah-deksan* is 8 (10—2).

Hence the primitive Finnic word for 10 was *deksan.* The fact that it occurs only in composition shows it could not have been borrowed. It enters into the very structure of the numerals for eight and nine, which no borrowed numeral would have done.

The Finnic words for 7 are *seitsema* (*n*), *seitza, seittem*, and *sebet*, with which we may compare the 7 of the Aryan languages, such as the Irish *secht* from *sechten*, the Welsh *seith*, the Lithuanian *septyni*, the Gothic *sibun*, the Old Slavonic *sedmi*, and the Sanskrit *saptan.*

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The Finnic 2 is *kat* or *kaksi*. It appears that this was the primitive Aryan 2, for the Zend *kshvas*, 6, points to an original initial guttural, justifying Prof. Goldschicher's view that it stands for *ka-katwar* = 2 + 4.

For 100 we have from the stem *katam*, the Sanskrit *catam*, the Greek ἑκατόν, and the Latin *centum*. In Finnic languages we have the Suomi *sata*, the Livonian *sada*, the Mordwin *sada*, the Wogul *sat*, the Magyar *szas*.

The physical and linguistic resemblances between the Finnic and Aryan races are too deep to be explained by commercial intercourse, by wars, slavery, or migration, or as Penka argues, by geographical contact. Penka admits that they are so fundamental that they must go back to a very remote era. They extend to the Asiatic as well as to the European Finns; and, therefore, Penka thinks, must go back to the time when the Finnic races were still undivided.

Diefenbach holds, more reasonably as I think, that the pronominal suffixes of the verb, and the common verbal roots establish a primitive connection, and that the Finnic speech is the link between Aryan and Turanian languages. The common verbal roots and the words for relationship cannot be explained as loan words, since they vary according to the laws of phonetic correspondence, in the Asiatic as well as the European dialects, and they must, therefore, have belonged to the Finnic *Ursprache*.

The real difficulty lies in the fact that the physical resemblance exists only between the western Finns and the northern Aryans, neither the eastern Finns nor the southern Aryans exhibiting the pure Aryan type — tall, blue-eyed, and fair-haired.

This can be explained, if we suppose that the eastern Finns are Ugrians, and not Finns by blood, just as the Slaves, who agree with the Ugrians in type are probably not Aryan by blood; while the Mediterranean races are Iberian in blood and only Aryan in speech.

The most probable solution seems to be that in the western part of the primitive Finnic area, the more favourable physical conditions led to a development of the Finnic type and Finnic speech, into what we call the Aryan type and Aryan speech, while among the more northern portion of the Finnic race under the less favourable conditions found in the marshes of Finland, there was an arrested development, leaving the Suomi Finns and the Esthonians as survivals in race and language of the primitive race from which the Aryans sprang.

If we thus regard the Aryans as developed out of the Finnic family, we need no longer suppose that separate families

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branched off from the primitive Aryan stock, and migrated to the west, but we may think rather of a vast Finnic population spread over the great plain of Northern Europe, and there slowly developing the characteristics of Aryan speech, and gradually becoming differentiated by geographical separation—an inclined plane, as it were of race and language divided into separate stages or stairs, so to speak, by the destruction of the intermediate portions; those to the west becoming Kelts, those to the south extending their dominion and speech over the Iberian tribes, and those to the east over the cognate Ugrians—the last to separate being the Iranians and Indians, who exhibit a marked affinity to the Lithuanians, who remained in their original seats, side by side with the Esthonians and other advanced Finnic peoples.

This seems more probable than the hypothesis that a primitive pastoral tribe on the head waters of the Oxus, threw off successive hordes which marched westward into Europe.

The date of the separation of the Aryan from the Finnic stock cannot well have been less than 6,000 years ago, and it may be interesting to inquire, in conclusion, what linguistic science teaches us as to the common element of civilisation then possessed by the undivided people, as shown by the culture words common to the Aryan and Finnic languages, and which, because of their wide extension, cannot well have been mere loan words.

In the discussion of the verbal roots which are identical in Aryan and Finnic, it will have been noticed that from identical roots, wholly different words have been formed to denote the same things. Thus from the root *kap* we have *cap-ut* and *κεφ-αλή* in Aryan, and *kop-aska*, a skull, in Finnic. The root is the same, but the formatives are different. From the root *kam* we have *cam-era* in Aryan and *kam-ma* in Finnic. From the root *kar* we have *gla-dius*, *kur-as*, *cur-ro*, *kar-an*, *cor-acle*, *car-bes*, *carriage*, *ker-ap*, *cul-mus*, and *korsi*. In these cases the words seem to have been formed subsequently to the separation of Finns and Aryans.

But in the case of a few of the primary necessaries of life, the words as well as the roots are the same, and hence we may deduce the state of civilisation arrived at before the separation.

Assuming that the Proto-Aryan race was originated in a cold climate, shelter must have been imperative, and accordingly from the root *kat*, to cover, we get the words *hut* and *cot* (Old High German *huota*, Anglo-Saxon *cyt-a*, Old Norse *kot*). Now these words run through the whole of the Finnic languages, Asiatic and European, so that they cannot be Aryan loan words. The word for a house or dwelling is *kot-a* in Suomi, *kod-a* in Estho-

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nian, *goat-te* in Lapp, *kud-o* in Mordwin, *kud-o* in Tscheremis, *kat* and *kuz* in the two Ostiak dialects, *haz* in Magyar, and *kot-o* in Mongolian.

They must also have required clothes, and from the same root *kat*, to cover, which gives us the root for the primitive *hut* or *cot*, we get the Aryan word *coat*. The Finnic languages show that the primitive people were clad only in the skins of animals, since the skin or hide of an animal is *kut* in Wotiak, *ked* in Mordwin, and *kete* in Suomi.

If, as we shall presently see, they possessed domesticated animals they must have had enclosures. From the root *kar*, to surround or gird, we get, with the formative *t*, that which girded or surrounded. We have such words as *yar-d*, *gar-den*, and *hortus*, in Aryan languages, while in Finnic languages a garden is *kar-t* in Suomi, *kär-t* in Magyar; *kar-ta* is a cowbyre in Syrianian, a farmyard is *kar-ta* in Ostiak and Wogul, and *gar-dde* is a circle in Lapp.

Their domesticated animals seem to have been the stag, which is *cer-vus* in Latin, *kar-w* in Welsh, *har-t* in English, and *hir-sch* in German. The Finnic languages have the same name for the stag or probably for the reindeer. A stag is *har-v* in Esthonian, *hir-vi* in Suomi, *sar-v* in Lapp, and *szar-vas* in Magyar. This probably meant the horned one, as a horn is *sarvi* in Suomi, *szarv* in Magyar, and *cur* in Tscheremis, from the root *kar*, to be hard. The connection of *cervus* and *cornu*, *hart*, *hard*, and *horn* is thus explained.

The goat seems also to have been domesticated. It is *caper*, in Latin, and *hafr*, in Old Norse, the same as the Finnic *kapris* and the Lapp *habres*, all from the root *kap*, common to Aryan and Finnic, meaning to move to and fro, and hence to jump.

The ox, which is *taurus* in Latin, and *tarw* in Keltic, is *tarwas* in Finnic, but this is probably a loan word.

The pig, which is *porcus* in Latin, is *porsas* is Esthonian, *puros* or *pores* in Ostiak, *pors* in Syrianian, *boros* in Wogul, *porzas* in Wotiak, and *purtz* in Mordwin.

With the Greek ἵππος and the Keltic *epo-* we may compare the Suomi *hepo*, and the Ostiak *kopta*, a horse, and the Samoyed *habta*, an ox, and the Finnic *kāba*, a horse's hoof. These seem to be connected with the Finnic from the root √*hap* to speed, haste.

These animals were not only kept in enclosures, but tended by herdsmen, as appears from the fact that a shepherd is ποιμήν in Greek, and *piema* (genitive *pemens*) in Lithuanian, and *paimen* in Finnic.

The goose is χην in Greek, and *gas* in Old Norse, Swedish,

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and Russian. It is *gaz* in the Tatar languages, and *hanhi* in Finnic.

Of the metals the undivided race seem to have known gold and copper, the two metals which are found in a metallic state.

All through the Finnic languages, we have the root *kol, kil,* or *kul,* meaning to shine, to be yellow. It is seen in the Tscheremis *kul-a,* and the Finnic *kul-la,* yellow, and the Esthonian *kul-u,* yellow, unmown grass. Hence we get the Suomi *kul-ta,* the Esthonian *kuld,* the Lapp *golle,* which means gold, and the Samoyed *kola,* the Tatar *kola* and the *gule,* which means brass or copper. In Aryan languages, we have the same name from the same root *ghal,* to be green or yellow (whence the Latin *lutum*), or *ghar,* to shine. Hence the Lithuanian *geltas,* yellow, and the Gothic *gulth,* gold. It is possible that this may be a loan word, but if so, it seems to have been a Finnic word borrowed by the Aryans.

As for copper the case is stronger. No Aryan etymology is known for the Latin *æs,* the Gothic *ais,* and the Sanskrit *ayas.* But the root seems to be the Turkic √*as,* to dig, seen in the Tchagatai *es-mek,* and the Jakut *kas,* to dig. In the Finnic languages, copper is *vas-ki* in Suomi, *vas* in Old Magyar, and *air* in Lapp. Ahlquist remarks that the name for copper being the same among the Finns and eastern Ugrians is a proof that this metal was known prior to the separation of the Finnic race.

The Finnic *rauta,* iron, was probably at first a name for metal in general. In Accadian *uruda* is copper, in Pehlvi *rod* is bronze, metal is *ruda* in Slavonic and Lithuanian, which may be compared with the Livonian *roda,* metal, and the Suomi *rauta,* iron.

An iron sword is *kareta* in Irish and *ker* in Kurdish, which are probably only loan words from the Finnic. In Suomi a dagger is *karti,* and a knife is *kuras.* Iron is *karti* in Ostiak, *kort* in Wotiak, and *ker* in Wogul, which come from the Finnic root √*kar,* to be hard.

That the sea was known to the primitive Aryans appears from the fact that it is *mira* in Sanskrit, *mare* in Latin, *mor* in Keltic, *morje,* in Slavonic, *meer* in German. But it was known to the undivided Finnic race by the same name. We have *meri* in Tschud, *merri* in Esthonian, *märra* in Lapp, *mora* in Syrianian, *morja* in Wotiak, and *more* in Mordwin.

The Latin *in-sula,* and the Lithuanian *sala,* an island, have been referred to the Sanskrit *sara,* water. A more probable etymology is the Finnic *salo* and *saari,* the Lapp *suolo,* and the Livonian *sala.* This seems to be related to the word for *salt,* which runs through the Finnic languages. We have—

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Suomi	*suol-a.*
Veps	*sol-a.*
Esth	*sol.*
Lief	*suol.*
Syrianian	*sol, so.*
Permian	*sol, sov.*
Wotiak	*sil-al.*
Mordwin	*sal.*
Tscheremis	*san-zal.*
Magyar	*so.*
Ostiak	*sol.*
Wogul	*sol-vel.*
Samoyed	*ser, silo, salt.*

Donner (No. 724) takes it from √*sal*, to glitter, white, shining. The word *sal* runs through the Aryan languages of Europe, but not of Asia; it is found in Latin, Greek, Teutonic, Keltic, and Slavonic.

Fick says this root is √*sar* or √*sal*, to go, and connects it with *ser-um*, milk, and *sal*, island, in *in-sula*, and the Sanskrit *sara*, water, milk. But surely the Finnic etymology—white, glittering, is to be preferred.

The primitive Aryans possessed ships as appears from the Sanskrit *nau*, the Iranian *nâve*, the Greek *ναυς*, the Latin *navis*, the Keltic *nau*, but this word does not appear in Finnic languages. The German *kahn*, which reappears in Old Norse, and in Low German, seems to be the Finnic *küna*, a small boat, apparently derived from the Finnic *kyna*, a hollow tree.

Salmon is *lohi* in Finnic, which may be compared with the Russian *loch* and the German *lachs*.

Cheese is *kus* in Finnic, probably the same as our word cheese, and the Latin *jus*, broth. This seems to show that the cheese was only curds.

The Indian *soma*, Iranian *homa*, the drink of the gods, may, I think, be explained by the Finnic *sima*, honey or mead. In Magyar *som-joh* is thirst, in Mordwin, *sem-an* is to drink, and *sim-ina* means drunken. In Livonian *säm* is drunk, and *sëm-a* is milk.

The Aryan *kard*, beast, may be compared with the Finnic root *kar*, to jump or spring.

A name is *nim* in Syrianian, *nimi* in Suomi, *nem* in Ostiak, and *nev* in Magyar. To count is *leg-ere* in Latin, and *luk-ea* in Finnic.

With the Latin *candela* we may compare the Suomi *küntela*, the Wotiak *kuntteli*, the Lapp *kyndel*, and the Mordwin *sandal*.

It appears, therefore, that prior to the separation of the

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Aryan and Finnic races, they were acquainted with copper and probably with gold, but their tools were chiefly of horn or stone. They sheltered themselves in huts, and were clad in skins, but there is no evidence that they possessed the art of weaving. They knew how to kindle fire, they could count up to ten, possibly up to a hundred. They had personal names, while family relationship and marriage were fully recognised. They were acquainted with the sea, and may have been able to cross lakes or rivers in canoes made of hollow trees. They caught salmon and used salt, and gathered bitter herbs for food, or more probably for condiment. It does not appear certain that they grew grain or were acquainted with the rudiments of agriculture, the name of the Finnic plough, *kar*, the crooked branch of a tree, being only doubtfully connected with the name of the Aryan plough. They collected honey, out of which they made an intoxicating drink, and made a sort of soft cheese, like curds. They possessed herds of domesticated animals which were tended by herdsmen, and were kept in fenced enclosures. These animals were probably goats, swine, reindeer, and geese, and possibly oxen, but the dog, the sheep, and the horse seem to have been as yet untamed.

In conclusion I may add that if this hypothesis, as to the primitive identity of the Aryan and Finnic races be finally established, a world of light will be thrown upon many difficulties as to the primitive significance of obscure Aryan roots (*salt*, *æs*, *arare*), and the nature of the primitive Aryan grammar.

We are furnished, in fact, with a new and powerful instrument of philological investigation, which can hardly fail to yield important results. Comparative Aryan philology must be prepared henceforth to take account of the Finnic languages as affording the oldest materials which are available for comparison.

Discussion.

Prof. Keane remarked that no doubt Canon Taylor had advanced some striking arguments in favour of a Finnish descent of the first Aryan-speaking populations. But some very formidable difficulties would have to be removed before that theory could meet with general acceptance. Much stress was laid on the fact that the Finns were physically a European (Caucasic) rather than an Asiatic (Mongolic) people, and the suggestion that their resemblance to the surrounding Teutonic populations might be due to long contact and gradual assimilation was rejected as to the last degree improbable. But within the Ural-Altaic family itself, of which the Finns have hitherto been regarded as outlying members, such assimilation had actually taken place in comparatively recent times. Obvious instances were the Bulgarians, Magyars, and Osmanli

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Turks, some of whom no doubt here and there still betrayed traces of their Ugrian and Turkic descent, but most of whom were now scarcely to be distinguished from ordinary Europeans. What, therefore, had happened in the Balkan Peninsula and Hungary within the last few hundred years might well have happened in Finland within the last few thousand years, during which we now know the Suomi people have been in close contact with Norse and other Germanic as well as Slavonic tribes. For a long time large tracts in South and West Finland, where the population is chiefly centred, have been occupied by Swedish settlers, and the Swedish language is even still current along the seaboard from Abo eastwards to Wyborg, and northwards to Uleaborg. For ages the whole region has been an area of intense intermingling, which has resulted in the Tavastians, or western Finns, of somewhat Germanic type, and the Karelians, or eastern Finns, more nearly allied to the Slavs. The primitive Finnish type has thus been no doubt considerably modified in Finland itself, and even in Lapland. But the true Mongolic character of that type is clearly revealed in their eastern neighbours the Samoyedes, who speak a closely related language, and who, being less exposed to invasion in their inhospitable northern homes, have far better preserved the physical features of the common original stock. It should also be noted that these features may still be detected in the dirty white, never really florid complexion, brachycephalous head, broad face, large mouth, small and sometimes even oblique eyes, and beardless face, of the Quäns and Ostrobothnians of Central and Northern Finland, who have also formed some isolated settlements in Central Scandinavia. With regard to the curious theory that the primitive Aryans were differentiated from the Finnish stock by a process of albinoism in the marshy lowlands of Central Europe, it should be borne in mind that albinoism is essentially a morbid affection, which, if due to unfavourable conditions, would again disappear in a more salubrious environment. Hence, the feeble white Russians of the Rokytno swamps, Poesche's land of albinoism in a pre-eminent sense, become as vigorous and energetic as any other Slav people when removed to more healthy districts. The so-called "albinoism" of the typical Germanic race, the finest in the world, can in no way be regarded as pathological, and was certainly evolved, not in the sickly Pinsk marsh lands, but in the invigorating atmosphere of some breezy upland or marine region.

Nor does Canon Taylor's philological argument seem to carry more weight than that based on anthropological considerations. Notwithstanding certain points of resemblance, chiefly lexical, a profound abyss still separates the Aryan from the Ural-Altaic linguistic family, of which the Finnic is confessedly a member. The lexical affinities have been carefully studied by W. Thomsen, in his classical work "Ueber den Einfluss der germanischen Sprachen auf die finnisch lappischen," and this eminent Danish philologist would be about the last person to suggest a Finnish origin for the Aryan languages. In a lecture delivered some three

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years ago in Copenhagen he dwelt more directly on this point, remarking in reference to Andersen's well-known "Finnish proclivities," that it was open to anyone to assert an extremely remote connection of Aryan and Finnic; but although these languages might be perhaps more nearly related than Aryan and Semitic, still the distance was so great, that in the present state of our knowledge, the relation could neither be affirmed nor denied. The theory was a pure hypothesis of no scientific value, because based on no solid groundwork of fact. Certainly this groundwork, which specialists such as Thomsen and Winkler have failed to discover, has not been supplied by Canon Taylor's verbal comparisons, made before even an attempt has been made to establish a common Finno-Aryan system of *Lautverschiebung*. Winkler, whose monumental work on the Ural-Altaic races and languages is still in progress, distinctly asserts that, even in its present advanced state, Finnish can in no way be regarded as an inflecting language. The point has been so much discussed, and is of so much importance in the present connection, that it may be well to quote his very words: "Meine Ansichten werden sich im Fortgange ergeben, so namentlich dass ich nicht entfernt die finnischen Sprachen für flexivische halten kann" ("Uralaltaische Völker," I, p. 54). But if Finnish has not even yet approached the inflecting state, what was its condition some 5,000 or 6,000 years ago, the period to which Canon Taylor refers the separation of the Finnic and Aryan stocks? And can it be for a moment supposed that, starting from such crude beginnings, it had time to develop into the highly inflecting organic Aryan speech, which had itself already become differentiated into the Indian, Iranian, Hellenic, Italic, and other well marked groups, such as we find them at the very dawn of history? It should be observed that throughout the whole of their historic life, the Finno-Tatar and Aryan languages have been pursuing two opposite lines of development, the former *ascending* from rude agglutination in the direction of inflection, the latter *descending* from the very highest forms of inflection down to the analytic state, as illustrated, for instance, in English, Danish, and Persian. This disintegrating process must certainly have been going on for a much longer period than Canon Taylor's 5,000 or 6,000 years, as must be obvious when we remember the profound differences already separating the Keltic, Italic, Teutonic, and other branches upwards of 2,000 years ago. Consequently at the assumed date of the Finno-Aryan dispersion the Finnish was in a very low state of agglutination, while the Aryan was much more highly inflected even than any of its present representatives, as known to us in their most archaic forms. It follows that Canon Taylor allows absolutely no time at all for the tremendous transition from the agglutinating Finnish to the inflecting Aryan form of speech, as postulated by his or Andersen's theory.

Then we are asked to believe that the Slavs are mainly Aryanised Ugrians, and the South Europeans Aryanised Iberians, which only intensifies the difficulties standing in the way of this

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theory. For, although not intrinsically impossible, such startling transformations could not be effected in a moment by a touch of the magician's wand, but would require a vast period of time, which is precisely the very factor Canon Taylor suicidically eliminates from his hypothesis. The Slavs are not merely Aryanised in speech, but, if originally Ugrian Finns, they have most of them long become almost typical Europeans in their physical features; for it would be difficult to discover in Western Europe more regular features, more finely modelled heads than those which we currently meet, even amongst the peasantry in Montenegro, Servia, Croatia, Poland, Bohemia, and many parts of Russia. All these Sarmatians were 2,000 years ago as distinct as they now are from the surrounding Scythian populations, so that the hypothesis allows at the very utmost only 4.000 years to effect the astounding transformation from an Ugrian Finn, or, say, from a Wogul or an Ostyak, to the ideally beautiful Caucasic type. Such a transition might no doubt be brought about by the absorption of a few Ugrians in a large mass of Western Aryans. But the assumed process was all the other way, the great body of the "Ugrian Slavs" being supposed to be Aryanised by a few "Finno-Aryan" conquerors from the region between the Rhine and Vistula, where we are told the Finns were originally transformed to Aryans in speech and type. Thus, from whatever point of view the theory is approached, it seems to fade away from the safe ground of fact into the airy region of doubtful or untenable hypothesis.

Mr. Bouverie-Pusey remarked in reference to an observation by Prof. Keane on the Bulgarians, that the Bulgarian peasantry of the neighbourhood of Sofia seen by the speaker last year, closely resembled in their features the Chinese.

Mr. Stuart Glennie said that according to Retzius, *Finska Kranier* (1878), two distinct types were to be distinguished among the Finlanders, a dark and a fair type; and this fair element Quatrefages connects with those non-Semitic and non-Aryan white races to which he has given the name of Allophyllian, but which might, perhaps, be preferably named Archaian, if races of this stock are found to have been the initiators of the archaic civilisations that preceded the Semitic and Aryan civilisations. From such a white race Mr. Stuart Glennie thought that it might be found possible to show that the Aryans were derived, though he could not accept their derivation from a race of the Turanian stock. He would add that, raised as the Kelts now undoubtedly are, he questioned very much whether their claim to be considered as a primitive, or the primitive Aryan race could be justly set aside so summarily as by Penka in favour of the Scandinavians.

Mr. Hyde Clarke writes, that seeing so many visitors were present, whom it was desirable to hear, he reserved his remarks for the *Journal*. He considered that the paper of Canon Taylor opened up the question of the relations of comparative philology with anthropological science generally. Those relations are of a

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most unsatisfactory character, and this was illustrated by the Canon, for his allegations were not such as to command the adhesion of the naturalists present. He leaned on authority, instead of depending on facts open to every observer, as in other departments of natural science. Nevertheless, he stated that the authorities had been altogether wrong on this Aryan question, and were now to be abandoned. With a colleague he had adhered to the proto-prophet of Aryanism in this country until two years ago. They now proposed to transfer their allegiance to some other authorities in Germany, for whose accuracy he vouched, and for whom he solicited implicit credence, though the two chief exponents of the new version of Aryanism do not agree with each other. It might have been hoped that dependence on authorities had ceased in every branch of science. The new scheme of Aryanism only amounts to a shifting of the scenery of the old theory at a moment when by an accumulation of evidence it has been condemned. The departing Aryanism with its philology and mythology depends on the myth of a proto-Aryan language. For this is substituted another speculation of a pre-historic union of the proto-Ayran and the proto-Finnish languages, for we may for the time dismiss points as to race. The evidence in support of this speculation is altogether valueless, because it will prove many other various propositions. Such a union of Indo-European and Finnic does not necessarily imply a union with the whole body of the Altaic languages, because such a class as Altaic is an artificial classification when regarded practically. It would, however, embody Finnic even to Magyar, and most probably a large mass of languages in the Himalayas.[1] Such a union would be attended by a confusion of languages, races and historical incidents causing still greater difficulties in obtaining a clear solution. The lately dominant philology of the authorities was a survival of the doctrine of the Semitic archetype of language, having in alliance the later invention of Sanskritism, as another pre-eminent type. To study a Semitic grammar or a Sanskrit grammar gave the title of scholarship and of the doctorate. All else was outside the sacred bounds. The course of events in England and France has brought about a revolution. Chinese studies have maintained and asserted their independence and dignity. The establishment of the philology of the Dravidian languages by Bishop Caldwell and our other Indian scholars has created another domain. The attention which has been bestowed on the promotion of Egyptian and cuneiform investigations has most materially influenced the minds of the learned, notwithstanding the dogged resistance of the authorities to the results of discovery. The labours of Bleek in Bantu; of our missionaries in Australasian and Polynesian languages; and of American men of science in the Indian languages, have all contributed to attract

[1] "Himalayan Connections of the Magyar," by Hyde Clarke, in "Journ. Anthrop. Inst."

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notice to the despised "Turanian." Not the least among the operative influences have been the exertions during a long generation of our two Societies, and the Anthropological Institute, which now exists in their union. The Institute has always recognised philology as a legitimate branch of anthropology, and has been the means of publishing papers, and of stimulating researches, which have brought forward much new evidence, registered in our journals, on languages, and on collateral information relative to them, which were new to inquirers. Prof. Huxley, during his Presidency, induced that remarkable scholar Dr. Bleek to contribute to our pages, and his writings may be usefully referred to in their bearing on the Canon's conclusions. Upon the Aryan problem contributions will also be found in our volumes. So far from its being the case that the philologists of Germany are enrolled in support of his phase of Aryanism, the school of "new philology" has organised itself under direction of Dr. Carl Abel and other eminent leaders; last year was held the first Conference, and this year the second. Indeed, beyond its influence in the special study of Sanskrit, Aryanism is not now regarded as a reigning power. Canon Taylor has marshalled a large number of cases to show the connexion of Indo-European and Finnic, and most of these may be admitted without accepting his conclusions. They relate to incidents which result from the original laws of the formation of language, or to what may be found in many other languages besides Indo-European and Finnic. One great cause of the present backward condition of authoritative philology is the preference of its scholastic votaries for grammatical construction and the neglect of words, which should be the primary study. Thus languages are classified by grammatical peculiarities, which, after all, are not typical or characteristic. The Altaic languages are brought together from several groups, which have no connection of words. In the Turkic group a man may, with little practice, work his way among a number of tribes from the European frontier to that of China, but this will not help him with Magyar, Mongol, or Manchoo, any more than with Japanese or Korean, which it is now proposed to throw into the class. The elements of comparative philology are to be found in manuals, and those which are sufficient are very cheap, but little attention is paid to facts, and much to imagination. Philology and psychology, as branches of anthropology, are, indeed, much in the same condition. To place the Aryans in Central or Eastern Europe, or in Scandinavia, for thousands of years, is to create a difficulty in the working of such incidents and events as we can discern. We should have to admit that they allowed the Iberians to act in those regions and to control the neighbouring countries of Europe. We must suppose that until a measurable historical period they let Hellas and Italy alone, even if there in the first instance they effected a forcible invasion. We know that contemporaneously they occupied Persia and penetrated into India. At a very late period alone the central body of the Aryans are to be supposed to have assailed the Roman Empire.

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Apart from purely anthropological considerations, the historical relations are most unfavourable to the hypothesis upon which dependence is now placed, and which are less plausible than the High Asia doctrine. In the whole matter we are called upon to assume that the white races first entered on the scene when they were albinoised in White Russia, when we know that the Aryan epoch is only one late movement of the white races. If we cannot as yet positively identify the originators and propagators of speech, and the culture connected with it, as white races, or the introducers of culture into Egypt as such, we are compelled to suspend our judgment in this consideration by the formation of the great historical empires of antiquity by Turanian whites, and the extensive remains we still have of white races. The Persian population is that which was there before the Aryans, and the Georgian nations, speaking highly organised languages, now disguised as Alarodian, have been before now adopted as typical whites. Then there are those remains of white populations in the central chains of Asia referred to by Mr. Stuart Glennie, some of which speak dialects approaching Indo-European; but some, like the Lolos, retain what is called Turanian culture. In considering possible centres of the white migration, many circumstances should induce us not to neglect High Africa. The data of Canon Taylor and others as to the culture of the imaginary proto-Aryans and proto-Finns are simply philological, and as such require to be compared with the body of the vocabularies of Africa and America, when it will be found that the special conditions relied upon cannot be sustained, and are applicable to many populations. The argument founded upon numerals is also weak, and requires correlation with the main body of data, as numerals are of less value for determination than philologists have assumed. Indeed generalisations from a specialised class must, as in other departments of nature, be examined under the whole body of evidence to constitute real and operative generalisations. The Canon has brought forward M, T, and S, as decisive indices of the common origin of Indo-European and Finnic as pronominal terminations in inflection. The Canon knows that M, T, and S figure strongly in Semitic formations, and he may be reminded that they play their part in the Bantu and in the Georgian. It is requisite therefore to use caution in depending upon them in the instances cited, and so with many examples. The reason why Mr. Clarke has gone more fully into the general considerations is with the desire to call attention to the present condition of philology at this period of transition, as much as to Canon Taylor's paper as an exemplification, and in the hope that the scientific study of philology may be promoted.

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ANTHROPOLOGICAL MISCELLANEA.

Wake, C. S.

The Primitive Human Horde.

Mr. G. L. Gomme, in his suggestive paper printed in the *Journal* of the Institute for November last (p. 118) states that the hypothesis there stated is put forward for consideration, and as I take especial interest in the subject discussed, and Mr. Gomme refers to a paper of mine, I propose to critically examine the evidence he furnishes in support of his hypothesis. Before doing so, however, it may be as well to see what is meant by "primitive human horde." The idea, if not the phrase, is that of the late Dr. J. F. McLennan, and it is necessary that we should know exactly what we are intended to understand by it. The term *horde* is used by this distinguished writer to denote a "primitive group" ("Studies in Ancient History," p. 133), and it may be explained by the expression "the earliest human groups" (p. 121). It is evident, therefore, that before we can attach any definite meaning to that term, we must ascertain the characteristics of the "primitive group." They are as follows:—

(*a.*) The absence of any idea of *kinship*, and at first of consanguinity, although the latter idea would gradually be formed and give rise to the conception of stocks (p. 121).
(*b.*) Homogeneousness—that is, all the members of a group belong to the same stock (p. 183).
(*c.*) Promiscuity in the sexual relations (p. 134).
(*d.*) Uncertainty of paternity, with kinship through females only gradually recognised (pp. 124–5).
(*e.*) Female infanticide, with scarcity and capture of women (pp. 132–3), resulting in—
(*f.*) Exogamy.

We need say nothing about the "modification of promiscuity" to which Dr. McLennan gives the title of the "ruder species of polyandry," or the less rude polyandry which was developed by the help of the system of kinship through females only (p. 138).

When a "primitive human horde" is spoken of as equivalent to the "primitive group" or *horde* of Dr. McLennan, it must be supposed that the former has all the characteristics of the latter. When we examine Mr. Gomme's system, however, we find it is not so. The characteristics of his primitive horde are as follows:—

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(*a.*) Recognition by natural instinct of connection between parents and children, although quickly lost, and not used for *political* purposes (p. 122).
(*b.*) Possession of a totem system or the germs of such a system, with exogamy (pp. 127, 131).
(*c.*) Temporary monandry; no evidence of "utter promiscuity" (pp. 121–2).
(*d.*) Certainty of paternity and maternity, but recognition only temporary in duration and quickly lost (p. 122).
(*e.*) Infanticide did not produce scarcity of females (p. 131), nor, by inference, lead to capture of women.

To these conclusions may be added that an artificially formed organisation based on kinship was developed among migratory hordes, who came into conflict with preceding hordes, and that, owing to scarcity of women, polyandry arose among the former, in combination with descent through females (pp. 131–2).

The characteristics of Mr. Gomme's "primitive horde" are clearly very different from those of Dr. McLennan's "primitive group." The essential features of the latter are promiscuity in the sexual relations, absence of the idea of kinship, uncertainty of paternity, and female infanticide, causing scarcity of women and consequent capture, features which are absent from the former. When Mr. Gomme says there is "no excuse for using the term 'utter promiscuity,'" and "no reason again to suppose that paternity was uncertain, and was, therefore, incapable of being recognised" (p. 122), he cuts away the basis of Dr. McLennan's theory. On the other hand, according to Mr. Gomme's hypothesis, "the primitive human horde was kept together by outside forces, not by internal arrangements" (p.125), which is hardly consistent with Dr. McLennan's statement[1] that, though a group of kindred in the rudest stage "were chiefly held together by the feeling of kindred, the *apparent* bond of fellowship between the members of such a group would be that they and theirs had always been companions in war or the chase—joint tenants of the same cave or grove." Again Dr. McLennan says (p. 129) "It is inconceivable that anything but the want of certainty on that point (paternity) would have prevented the acknowledgement of kinship through males," a statement which in advance condemns Mr. Gomme's hypothesis; for this supposes that in the primitive human horde "both paternity and maternity were certain, and they were fully recognised," although kinship through females was the earliest to be originated, and was so only in a migrating horde as the result of conflict with a primitive horde.

So far, then, from Mr. Gomme having supplied evidence in support of Dr. McLennan's theory of the primitive group or horde, he has formulated something quite different. Let us now examine

[1] "Studies," page 122, Mr. Gomme quotes a portion of this passage in support of his view of "outside forces," but unfortunately he omits all the words before "fellowship."

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the arguments by which his hypothesis is supported. Mr. Gomme's primitive horde consists of a group of individuals whose sexual relations were those of "temporary monandry," in which a man choses a woman and is husband to her "just so long as offspring is begotten and requires protection." As soon as the offspring were capable of taking care of themselves the parental tie was snapped and the relationship ceased to be recognised. This group of individuals possessed or developed the principles of totemism and exogamy, and was kept together (1) by "a totem organisation and not a blood tie;" and (2) by "the accumulated and accumulating fears of the dangers that surrounded them," which fears found their ultimate expression in a system of nature worship, and not by "internal arrangements." Mr. Gomme remarks that it is impossible to conceive that the union of parents would continue after the offspring were capable of taking care of themselves, and in a note he affirms that "many examples exist in savage society where the parents separate after the birth of a child" (p. 122). It is a pity some of these examples are not given. As a case in point I would refer to the statement of Sir Ed. Belcher[1] in relation to the Andamanese, of whom it is said that a man and woman separate as a matter of course when their child is weaned, and each seeks a new partner. This is, however, so entirely opposed to the actual facts as now made known by Mr. E. H. Man, that we ought to be on our guard against accepting casual observations of the social customs of savages until they have been verified by careful research by competent enquirers. Mr. Man's testimony as to marriage among the Andamanese is that "so far from the contract being regarded as a merely temporary arrangement, to be set aside at the will of either party, no incompatibility of temper or other cause is allowed to dissolve the union, and while bigamy, polygyny, polyandry, and divorce are unknown, conjugal fidelity until death is not the exception but the rule" ("Journ. Anthrop. Inst.," Vol. xii, p. 135.)

The only systematic use of "temporary monogamy" I am acquainted with—isolated cases are almost valueless for the purposes of a general argument—is that recognisd by the natives of North America, who, when first visited by Europeans, had what Mr. Lewis Morgan calls ("Ancient Society," p. 453) the syndyasmian or pairing family. This family was founded upon marriage between single pairs and possessed some of the characteristics of the monogamian family, although the marriage was a matter of convenience and necessity, rather than of sentiment, and it continued only during the will of the parties. The husband "could put away his wife at pleasure, and take another without offence, and the woman enjoyed the equal right of leaving her husband and accepting another, in which the usages of her tribe and gens were not infringed." Not only have the American aborigines this simple pairing family, but, like Mr. Gomme's primitive horde, they possess

[1] Curiously enough, Sir John Lubbock cites this case as an instance of "communal marriage."—"Origin of Civilisation," 3rd ed., page 82.

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the principles of totemism and exogamy. Their institutions may, indeed, be said to be based on totemism, for the totem is the symbol of the gens, and they possess the gentile institution, or, as it was named by Schoolcraft, the totemic institution, fully developed. The gens is said by Morgan (p. 63) to have been "the instrumentality by means of which society was organised and held together." It answers, therefore, to the totem organisation which kept together Mr. Gomme's primitive horde, and we may assume that the latter was based on the same ideas as the gens.

This is an important conclusion, for the gens came into being upon three principal conceptions—the bond of kin, a pure lineage through descent in the female line, and non-marriage in the gens. One of its obligations is not to marry in the gens, and from it springs the practice of exogamy. The existence of the totem organisation in the primitive horde would thus require it to have been bound together by the ties of kin, and the practice of exogamy proves not only that kinship was fully recognised, but that it had such a binding force. When, therefore, Mr. Gomme states that "the horde possessed, or had developed, the principles of totemism and exogamy," it is equivalent to admitting that the primitive group consisted of persons related by blood, who were not allowed to intermarry, and who, like the members of the gens, were bound together by the ties of kinship.

The earliest American gentes appear to have preferred descent in the female line, and as women lived with their children among their husband's relations, each gens had members in more than one tribe. It is clear that in such a case the influence of the "outside forces" referred to by Mr. Gomme, would not suffice to keep the group together. With descent in the male line the result might be different, and so, also, where, with descent in the female line, the wife and her offspring reside with *her* kindred. This was probably the case among the early Arabs, and the Arab tribe may be said to answer as nearly as possible in most respects to Mr. Gomme's primitive horde. Unfortunately, however, for his hypothesis, Prof. Robertson Smith, who accepts Dr. McLennan's views as to the early society, affirms ("Kinship and Marriage in Early Arabia," p. 22) that "the tribal bond all over Arabia, so far as our evidence goes, was conceived as a bond of kinship. All the members of a group regarded themselves as of one blood." Elsewhere (p. 227) Prof. Smith declares that "common blood, as indicated by the common totem, is the only permanent bond of union, and manifests itself as such whenever a blood-feud arises."

Mr. Gomme endeavours, however, to place his hypothesis on the basis of fact, and he refers to a people of Central (?) Asia, the Abors of Assam, as affording "the most singular specimen of the primitive horde, both in respect of the external forces which keep it together, and of the internal organisation which regulates the conduct of individuals to one another" (p. 127). Those forces are said to be so potent that Abor life must "depend almost entirely upon local, not personal influences," and they are aided in keeping

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together the group by the totem system, which, however, has not yet been discovered, although it is thought, by analogy to the case of the neighbouring Khasias, to exist within the Abor group. We have seen that the totem is the symbol of a gens based on the bond of kin, but Mr. Gomme mentions, as a definite fact, "which goes far to establishing the theory that they represent a type of the primitive horde," that, although externally the Abors make up one group, "internally there are no traces of the cohesion resulting from the ties of recognised kinship." What is the evidence furnished in support of this assertion? Mr. Gomme deplores that minute examination of the social system of the Abors has not been made, but he tells us that "they are like tigers—two cannot dwell in one den; and their houses are scattered singly, or in groups of two or three over the immense extent of mountainous country occupied by them;" and that whenever a few families of Abors have united into a society, the community is soon broken up by fierce feuds and summary vengeance. But, surely, if these are facts they do not warrant the conclusion that the Abors are "entirely free from the ties of kinship."

Mr. Gomme finds a close parallel between this people and the Cyclopes, and, notwithstanding their complete geographical and chronological discontinuity, supposes them to "belong to an epoch in human history which witnessed the continuous population of this long stretch of territory by groups of the Abor and Cyclop type." Homer's language about the Cyclopes is said to furnish a short summary of the social condition of the Abors. This people must, therefore, be "a lawless folk, who plant not aught with their hands neither plough," and they can have "neither gatherings for council nor oracles of law," but they dwell in hollow caves and "reck not one of another," denoting that they were not bound together by the tie of recognised kinship (p. 128). Now, what are the actual facts? Mr. H. R. Rowney, who mentions that the Abors cannot live peacefully alongside of each other, states ("Wild Tribes of India," p. 157) that they cultivate rice, cotton, tobacco, maize, ginger, a great variety of esculent roots and pumpkins, the sugar-cane, and opium. Each man's clearing is marked off by upright stones, and they have various agricultural implements, which are probably made by themselves, as they have the art of working iron, and can make bells. We learn further of the Abors, that their tribes form confederated states, and "each community is governed by its own laws, devised and administered on purely democratic principles. The laws are made by the people collected together, every individual having an equal vote." Notwithstanding their independent disposition, absolute obedience is given to the decisions of the assembly of citizens, even where it concerns only the course of daily labour. In fact, they are a law-abiding people, and crimes are considered as public pollutions which require to be atoned for by a public sacrifice, which has ultimately to be paid for by the guilty person (Reclus, "Nouv. Geog. Univ.," Vol. VIII, p. 204; "Evolution of Morality," Vol. I, p. 148).

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Finally, so far from the Abors living only in scattered dwellings, they have considerable villages, each of which has a town hall where the unmarried men pass the night. These facts seem to me to furnish sufficient evidence of the existence of "cohesion resulting from the ties of recognised kinship," and if, as Mr. Gomme asserts, a more elaborate description of the Cyclopes than that given by Homer is to be obtained from what is known of the Abors, the former must have been somewhat libelled by the Greek poet.

So much for the modern specimen of the primitive horde referred to by Mr. Gomme, who considers, however, that the Abors "are but a type of the general aboriginal Indian group." In support of this opinion he quotes a passage from Sir Alfred Lyall's "Asiatic Studies," which refers to the Bheels as a "simple aboriginal horde." This passage, Mr. Gomme thinks, is a remarkable confirmation of his own conclusions. There are, however, facts connected with the Bhéels and other aboriginal Indian peoples which forbid us to regard them as reproducing the characteristics of a "primitive human horde." Notwithstanding their apparent lawlessness and their old predatory habits, the Bheels exhibit "great attachment for home and family, kindness towards women, respect for their elders, and an unsophisticated love for truth" (Rowney, p. 37). Their simplicity of character is remarkable, and when confided in, they are the most trusty of servants. Moreover, the Bheels were not always the "outlaws" their present name would lead us to believe. Their former pre-eminence is denoted by the fact that on the crowning of a Rajpoot prince a Bheel marks his forehead with drops of blood drawn from his thumb and his great toe, and thus anoints him as native, and transmits to him the right to possess the country (Reclus, "Nouv. Geog. Univ.," Vol. VIII, p. 282).

Mr. Gomme supposes that the primitive hordes of hunters and fishers were uninfluenced by the ties of kinship, and that later on migrating hordes were enabled successfully to contend with them, owing to their being organised on the basis of kin. An indication that "the ties of kinship had already influenced human thought" is found in the stated fact that "now, for the first time, the dead are carefully buried." If, however, burial of the dead is evidence of the recognition of kinship, this must be allowed to the Bheels, who bury their females and children, although the males are burnt along with their arms and cooking utensils. Funeral rites have, in reality, no bearing on the question of kinship, and both burial and burning are in use among the peoples of India.

I might criticise Mr. Gomme's views as to the effect of migrations on "the development of tribal society based upon polyandry and kinship through females" (p. 131). I will do so, however, only by pointing out that polyandry is not, as a rule, due to a scarcity of women. This could be established by many facts. The cause of polyandry is well expressed by M. Reclus (*op. cit.*, p. 204), when he says of the Dapla, who are allied to the Abors, that "like their neighbours of Tibet, they admit all forms of

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marriage; both polyandry, usual among the poor, and polygyny practised ordinarily by the rich." I would mention, also, that true polyandry is associated with kinship through *males*, and not with female kinship.

In conclusion, it appears to me that Mr. Gomme has signally failed in his attempt to establish the existence of Dr. McLennan's primitive group or horde. His arguments tend rather to support the view which he condemns, that the "family" formed the basis of the earliest human groups, which consisted of a number of individuals, or of family units, bound together by the ties of kinship.

C. STANILAND WAKE.

Welton,
18*th November*, 1887.

SKETCH *of* ANIWA GRAMMAR.

By SIDNEY H. RAY.

ANIWA is a low coral island in the south of the New Hebrides group. It lies 10 miles north-east of Tanna, and 50 miles north of Aneiteum, in South latitude 19° 15′, and East longitude 169° 40′. The population is rapidly decreasing, and in 1874 was only 194.

Though the natives of Aniwa are in general appearance and customs almost identical with the Melanesian tribes near them, their language is akin to the dialects of Eastern Polynesia, and more especially resembles the Tongan and Samoan. A closely allied language is spoken on the island of Fotuna, about 30 miles to the east of Aniwa. Dr. Steel in his work on the New Hebrides,[1] states that "the natives of the two islands can understand each other. Many of the natives of Aniwa are bilingual, as the island is so near Tanna on the one side and Eromanga on the other." A similar dialect is also found in the district of Mele, in Faté or Sandwich Island, about 100 miles to the north.

This sketch is drawn up from translations of the Gospel of St. John, and some of the Epistles,[2] made by the Rev. J. G. Paton, of the New South Wales Presbyterian Church, who has resided on the island since 1866.

I.—*Alphabet.*

1. Vowels, *a*, *e*, *i*, *o*, *u*, sounded as in Italian.

2. Diphthongs, *ou*, *ow*, *au*, as in *loud*; *ei*, *ai*, *y*, as in *my*; *oi*, *oy*, as in *boy*.

3. Consonants, *k*, *c*, *g*; *t*, *tsh*, *j*; *p*, *f*, *v*, *w*; *s*; *r*, *l*, *m*, *n*, *mn*. The consonants are sounded as in English, with the exception of of *c* and *g*, which have the same sound as in Aneiteum, and are pronounced as *g* in *go*; and *ng* in *sing*.

[1] "The New Hebrides," by Robert Steel, D.D., London, 1880.

[2] Ta fasao erefia ma tapu a hepe neisereace Mathius, Markus, Ioanes. I ta fasao Aniwa, Neu Hebritis. Fakowia Melburni Vektoria, 1877–1882.

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4. The *t* of Eastern Polynesia is often represented by *tsh*, especially before *i*. The *l* is little used, its place being taken by *r*.

II.—*Article.*

1. The definite article is *ta*, in the plural *a*; *ta fare*, the house; *a fare*, the houses; *ta fatu*, the stone; *a fatu*, stones. *Ta* is sometimes shortened to *tu*, and *a* to *u*, and *ta* is disguised in the form *to* before *u*; *tumtagi*, the wind (Samoan *matagi*); *umrama*, months (Samoan, *malama*); *towa*, the rain; (Samoan *ua*). *Ta* also appears as *te* and *ti*; *teriki*, the chief; (Samoan *ali'i*); *tiafi*, the fire; (Samoan *afi*).

2. Many nouns commence with the syllable *no*, which appears to be a kind of article. It is probably due to the influence of neighbouring Melanesian dialects, where *na* is the common demonstrative article. *No* is used with *ta* and *a*; *ta nontariki*, the son; (Samoan *atali'i*); *a nontariki*, sons; *nontariga*, the ear; *anontariga*, ears (Samoan *taliga*).

3. The numeral *tasi*, one, is used as an indefinite article: *tasi agelo*, an angel.

III.—*Nouns.*

1. In the Melanesian languages nouns may be divided into two classes. The first class takes a suffixed possessive pronoun, and the second expresses possession by the use of another word. Aniwa differs from other Polynesian dialects in having a few words of the first class. These denote relationship and parts of the body, and also include the noun *tsha*, a thing belonging; and the noun-preposition *nia*. Examples are: *tamanome*, our father; *arotowa*, your hearts; *tshaku*, my thing; *niau*, of me; *avaiore*, their feet.

2. Number is indicated by the numerals or articles; *ta nontariki*, the son; *ruanteriki*, two sons; *anontariki*, sons.

3. The nominative precedes, the accusative follows the verb; *teriki nokomy*, the chief is coming; *tamanowa nibisa*, your father rejoiced; *akoi nikowna avou*, thou sentest me; *acime keiro tamari*, we know the truth.

4. A few nouns have a prefix *foi*; e.g., *foimata*, eyes; *foirakou*, tree. This is probably the Tongan *foi*, as in *foiufi*, a yam; *foimanu*, a bird's egg, and signifies a mass or ball.

IV.—*Pronouns.*

1. Personal.

Singular. 1. *avou* [*avau*]; 2. *akoi* [*akoe*]; 3. *aia*.

Dual 1. Inclusive *acitawa* [*ketaua*]; exclusive *acimawa* [*akimaua*]; 2. *akorua* [*korua*]; 3. *aicrawa* [*kirua*].

Trial 1. Inclusive [*apekitatou*]; exclusive *acimatou*; [*kitatou*]; 2. *acoutou* [*aipe koutou*]; 3. *acratou* [*aipe*].

Plural 1. Inclusive *acitia* [*akitea*]; exclusive *acime* [*akimea*] 2. *acowa* [*akoutou*]; 3. *acre* [*akirea*].

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The forms in brackets are those given in a short vocabulary by the Rev. G. Turner.[1]

The same form is used both before and after the verb. After the preposition *ia*, the word *te* is introduced, as in most Polynesian dialects, and we thus have the forms: *iatavou*, to me; *iatakoi*, to thee; *iateia*, to him; *iatakai?* to whom?

In the plural, *te* does not appear. *Taha aia neimna iatakoi?* what he did to thee? *Avou nakatucua iacowa*, I have told to you.

2. Possessive.

A suffixed possessive pronoun appears in use with the word *tsha*, which is used as a possessive, also with the preposition *nia*, and in the plural with a few other words.

Singular 1. *-ku;* 2. *-u;* 3. *na.* Dual 1. Inclusive ——; exclusive *-omawa*; 2. *-orua*; 3. *-rawa.*

Plural 1. Inclusive *-ome*; exclusive *-oteia*; 2. *-owa*; 3. *-ore.*

Examples: *tshaku*, my thing; *niau*, of thee; *tshome*, our thing; *tamanoteia*, our father; *arotowa*, your hearts; *avaiore*, their feet.

3. Interrogative.

The interrogative pronouns are *Akai?* who? and *Taha?* what? *Akoi akai?* thou (art) who? *Akai acowa fatshigeia?* whom ye seek? *Taha aia neimna iatakoi?* what he did to thee? *Taha akoi kofakowia?* what thou askest?

4. Demonstrative and Indefinite.

Tenei, this; *tera*, that; *anera*, those things; *taha*, that; *tasi*, one; *sece*, another; *faru*, some, certain; *tagatotshi*, all men.

Tenei ta fasao komari, this the saying (is) true; *Taha nopogi nokomy*, that time is coming; *Ma anera acime vere*, for those (things) we work; *Tasi eipesia nohua, ma sece toria fakatapuria nohua*, one scatters seed, and another gathers and saves up the fruit; *Faru neitucua*, some said.

5. No reflexive or reciprocal pronouns appear.

Thou lovest thyself, is translated, *akoi acitiafakarafia akoi*, thou lovest thee; We love one another, is *acitia acitiafakarafia tasi ma sece o acitiotshi*, we love one and another of us all. The adverb *ana* is sometimes suffixed to the pronoun. *Ta nontariki aiana setomatua vere*, the son himself (lit. he only) is not able to work.

V.—*Possessive.*

1. The noun *tsha*, a thing belonging, is used as a possessive pronoun. With a suffixed pronoun it takes the following forms:

Singular 1. *tshaku;* 2. *tshou;* 3. *tshana.*

Dual 1. Inclusive ——; exclusive *tshamawa*; 2. *tshorua*; 3. *tsharawa.*

Trial 1. Inclusive ——; exclusive ——; 2. ——; 3. *tsharatou.*

Plural 1. Inclusive *tshote*; exclusive *tshome*; 2. *tshowa*; 3. *tshore.*

[1] "Nineteen Years in Polynesia," by Rev. G. Turner, London, 1861. The pronouns of Mele as given by the same authority are:—Singular 1. *avau*; 2. *akoe*; 3. *ia.* Dual 1. *taua, maua*; 2. *korua*; 3. *raua.* Plural 1. *tatou, matou*; 2. *koutou*; 3. *latou.*

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Examples: *Tshaku konouri*, my flesh; *Tshou fare*, thy house; *Tshana roto*, his heart; *Tshamawa nuntama*, of us two the son; *Tshorua nuntama*, of you two the son; *Tsharawa nokave*, of them two the brother; *Avai tsharatou*, the legs of them three; *Tshote nele*, of you and me the friend; *Tshome norima*, of him and me the hands; *Tshowa kabisa*, your joy; *tshare weina*, their wine.

2. The noun-preposition *nia*, is used in a similar way. *See* IX, 3.

3. *Tsha* is found in use with nouns. *Ta fare tsha Onesiforus*, the house the property of Onesiforus; *Avere tsha notshino*, works belonging to the body.

VI.—*Adjectives.*

1. A few simple adjectives are found: *sore*, great; *sisi*, small; *fou*, small (Samoan *fou*); *fonu*, full; *pouri*, dark (Samoan *pouli*); *ma*, pure (Samoan *ma*); *sape*, crippled (Samoan *sape*).

2. The prefixes of condition, *ma* and *ta*, seem to occur in the words *mero*, withered (Samoan *malo*, hard); *mtacu*, afraid (Samoan *mata'u*); *mafa*, heavy; *mukaligi*, cold (Samoan *ma'aligi*); *taru*-weak, slow; *tara*, tame (Samoan *tala*, untied).

3. Reduplicated forms appear: *totonu*, straight; *ouraoura*, purple (Samoan *ulaula*).

4. Adjectives follow their nouns, and are often used with the verbal particles: *noreo palo*, a voice loud; *avere sore*, works great; *tatane nimace*, the man (that was) sick; *tagata komate*, men (that are) dead.

5. Comparison is made by the word *kage* following the adjective: *ane isa sore kage*, a worse thing; (lit. a thing bad great above); *Aia sore kage avou*, he is greater than I.

6. Demonstrative and indefinite adjectives are: *nei*, this; *ra*, that; *tasi*, one; *jimra tasi*, not one, no, none; *faru*, some, *iotshi*, all; *toru*, few; *nalupai*, many.

VII.—*Verbs.*

1. Any word may be used as a verb, with or without a verbal particle. *Amori koma kotenei*, worship pure this; *avou tufwa*, I give; *aia kotufwa*, he gives. The particles have no distinction of person or number. A distinctly verbal character is given to a word by the particle *ko* (the Polynesian *kua*) which appears to have no tense signification but is most frequently used in the present.

2. Mood. A participle is formed by *noko*: *avou nimy nokobaptiso i tavai*; I came baptizing with water; *avou ncicitia ta nokano nokofanifo ia ta ragi*, I saw the spirit descending from Heaven; *ta mana nokomouri*, the father living.

The infinitive is expressed by *kei*: *tomatua keifakairo*, able to teach; *avou nakamo ane nalupai keitucua*, I had things many to say. Imperatives. The simple verb with or without *ko* shows the imperative: *sara ma kowcitia*, search and look. "Must" and "ought" are denoted by *erefia*, good, at the beginning of the

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sentence: *erefia aia komate*, he ought to die, (lit. good he dies); *erefia acowa kofarere foce*, ye must be born again (lit. good ye are born again.) Prohibition is expressed by the verb *natshicina*, leave, and desire by *acitiafakarafia*, to desire, love; *natshicina aia*, leave her; *natshicina mtacu*, leave fearing, do not fear; *acime acitiafakarafia kowcitia aia*, we desire (to) see him.

The subjunctive or conditional is introduced by the conjunction *pe*, if or that. The particle *muka* seems also to mark the conditional. *Atua nikowna tshana nontariki pe acitia mukoamo anea mouri*, God sent his son that we might have life; *pe acitia mukeiro*, that we may know; *pe acre mukafeke*, that they may depart. "Would" and "should" are expressed by *nukow*: *Akoi nukownogia aia*, thou wouldst ask him; *aia nukowtufwa*, he would give.

Power to do an action is shown by the word *tomatua*, power, able: inability by *taru*, weak, unable. *Akai tomatua fakarogona ra?* Who (has) power to hear that? *aia tomatua keipurutshia anera*, he is able to keep thing that; *acre kotaru torotshia my kowpega*, they are not able to draw hither the net; *aia kotaru vere hepra*, he is unable to work like that.

3. Tense. The particles denoting tense are: *ei*, present (?); *nei* or *ni*, past; *naka*, perfect; *ka*, future. *Akuli eiro*, dogs know; *tasi eipesia*, one scatters; *aia neitufwa*, he gave; *aia neitucua*, he said; *aia nimy*, he came; *aia nifeke*, he departed; *avou nakacitia*, I have seen; *avou nakafakoko*, I have fought; *acowa kasara avou*, ye shall seek me; *avou katufwa*, I shall give.

It is doubtful whether *ei* is a present particle, most verbs have *ko* only: *avou koutucua*, I say; *aia komy*, he comes. The immediate future is sometimes expressed by *noko*: *Wamuri avou tasi nokomy*, after me one is coming.

4. The causative prefix *faka* is seen in *fakairo*, to make know, teach; *fakatonusia*, to make straight, stretch; *fakariake*, make plain, shew; and many others. A shorter form *fa* is also found: *fakeina*, make eat, feed.

5. The terminations *a*, *fia*, *cia*, *ia*, *na*, *gia*, *ria*, *sia*, *tia*, *tshia* are found suffixed to verbs. In Samoan and Tongan these denote the passive voice, but it is doubtful whether they have the same use in Aniwa. "One bone of him was not broken" is translated *tasi newi tshana setoutshia*; but examples like *akoi nitaka*, thou girdedst thyself, and *tasi foce katakaia akoi*, another shall gird thee, seem to show that the terminations are sometimes equivalent to the Melanesian transitive suffixes.

6. The interrogative is indicated by *mo*, or, at the end of the sentence. *Akoi tasi teriki mo?* Art thou a chief?

7. The negative is *se*, used with all the particles: *Avou sekoma*, I am not ashamed; *senokoamo ane isa*, not having a thing bad; *acowa sekacitia avou*, ye shall not see me.

8. The verb "to be" is expressed by the particles. *Tenei ko acitiafakarafia*, this is love.

9. The verb *my*, *mai*, come, has a plural *romy*. *Aia komy*, he comes; *acre niromy*, they came.

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VIII.—*Adverbs.*

1. Directive. *Kace*, up; *ifo*, down; *mai*, *my*, hither; *fano*, *ace*, *ake*, thither; *efuafo*, forth.

2. Interrogative. *Mo*, at end of a sentence in asking a question: *konapecua ?* how? *wehe ?* where? whither? whence? *tiaha ?* why? *enaia ?* when?

3. Time. *Milow*, *milowa*, now, immediately; *ituai* of old, long ago; *foce*, again; *nopogi ma nopogi*, days and days, always; *tou ma tou*, years and years, for ever; *nopogi toru*, a few days; *mokagi*, before; *fakaliki*, together; *fakosore*, many times; *fakasisi*, a little time; *iranei*, to-day; *iratou*, to-morrow.

4. Place. *Iai*, here; *icunei*, here; *watai*, on the shore; *wamuri*, behind; *watafa*, outside.

5. Manner. *Ana*, only, entirely. Adjectives are used as adverbs of manner. *Avou nibisa sore*, I rejoiced greatly; *akoi imna erefia*, thou doest well.

IX.—*Prepositions.*

1. Simple. *O*, *a*, of; *e*, *i*, in, at; *i*, *ia*, to; *ia*, through.

2. Many prepositions are compounded of a noun and a simple preposition. *Iluga*, above, on the top; *iraro*, *iroro*, at the bottom, under, below; *iroto*, in the heart, inside; *itata*, at the side, near; *emoa*, in the front, before.

3. The preposition *nia*, of, belonging to, is a noun and takes the suffixed pronouns.

Singular. 1. *Niaku;* 2. *niau;* 3. *niana;*
Dual. 1. Inclusive ——; exclusive ——; 2. ——; 3. *niarowa.*
Plural. 1. Inclusive ——; exclusive ——; 2. ——; 3. *niare.*

X.—*Conjunctions.*

Ma, and, for; *mo*, or; *kaia*, but, how; *pe*, if, that; *hepe*, so, like, as, while; *ianei*, for the thing this, because; *ianera*, for the thing that, therefore; *ana*, also.

XI.—*Numerals.*

1. Cardinal. *Tasi*, one; *rua*, two; *toru*, three; *fa*, four; *rima*, five; *ono*, six; *fitu*, seven; *varu*, eight; *iva*, nine, *tagafulu*, ten. A set of numerals adopted from the English is in use in translations. *Wun*, *tu*, *thri*, *for*, *faiv*, *seks*, *seven*, *et*, *nain*, *ten*, *twelv*, *huntret*, *thousant*. The verbal particle *e* is used with the numerals.

2. The causative *faka* forms the ordinals, *fakarua*, second; *fakatoru*, third; once is *tasi*.

3. Distributives are expressed with a conjunction: *Tasi ma tasi*, one by one.

4. Multiplicatives are formed with *tshici*; *tshici fitu*, seven times; *tshici efia ?* how many times?

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XII.—*Exclamations.*

Keini! keine! yea! *Jimra!* nay! *Kawe!* woe!

XIII. *Specimens.*

Of the following No. 1 is the Fotuna Paternoster, as given in Dr. Steel's "New Hebrides," and No. 2 is the same in Aniwa. They are given, as showing the great similarity of the two dialects.

1. *Fotuna Paternoster.*

Tamanomy iragi. Kitapu tiau igoa. Kimai tiau avaka tagata. Kipenei tiau finagaro i takere nei feipei iragi Tufa mai akai tau rufie y kimy iranei. Tauki iomy kauligine sa feipe akimy natauaki kaulagine sa o faruki y kimy. Koina arafy kimy ki kauligine eresy. Kapena mauri kimy i tasa. Niau tavaka tagata ma tatamotau ma teatata y napugi ma napugi. Emen.

2. *Aniwa Paternoster.*

Tamanome tiragi. Tshou neigo tapu. Tshou tavaka komy. Tshou afasas erefia acre ia fanua wararonei fakarogona hepe i tiragi. Tufwa acime iranei tshome akai. Towaki nori maganisa tshome; hepe acime towaki nori o maganisa o tagata acime. Natshicina acime ia teretu o maganisa, kaia kapare acime ia ane isa iotshi. Ma tshou tavaka, ma tomatua, ma nokabisa, atou ma tou. Emen.

3. *Aniwa. John XXI*, 9–19. *From the Rev. J. G. Paton's translation.*

9. Milowa acre niromy ia fanua, acre neicitia tiafi o tafia marara iai, ma eika neinage iluga aia, ma bret.

10. Iesu neitucua iacre, Amy faru foce o eika acowa milow niamo.

11. Saimona Pitrus nifano iateia, ma nitorotsh iamy takowpega ia fanua, nifonu o eika sore, wun huntret, ma fefte-thri; ma acre nalupai su ma sefasia takowpoga.

12. Iesu neitucua iacre, koromy ma kakeina aia touate. Ma jimra tasi o niana tagata aia nifakairo tomatua nifakowia aia. Akai akoi? acre neiro aia ta Teriki sore.

13. Iesu nimy, ma niamo bret, ma neitufwa iacre, ma eika foce.

14. Tenei fakatoru Iesu nifakariake aia ia niana tagata aia nifakairo, wamuri aia nimasike ia tagata nimate.

15. Wamuri acre nikeinace, Jesu neitucua ia Saimona Pitrus, Saimona, nontariki o Iona, akoi acitiafakarafia avou sore kage acre ra, mo? Aia neitucua iateia, Keine Teriki sore; akoi keiro avou acitiafakarafia akoi, Aia neitucua iateia, Fakeina tshaku alam.

16. Aia neitucua foce fakarua, Saimona, nontariki o Iona, akoi acitiafakarafia avou, mo? Aia neitucua iateia, Keini Terike sore; akoi keiro pe avou acitiafakarafia akoi. Aia neitucua iateia, Fakeina tshaku asip.

17. Aia neitucua iateia fakatoru, Saimona, nontariki o Iona. Akoi acitiafakarafia avou, mo? Aroto o Pitrus nimy sore wamuri

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aia neitucua fakatoru iateia, Akoi acitiafakarafia avou? Ma aia neitucua iateia, Teriki sore, akoi keiro ane iotshi; akoi keiro pe avou acitia fakarafia akoi. Iesu neitucua iateia, Fakeina tshaku asip.

18. Tamari, tamari, avou koutucua iatakoi, Nopogi ra akoi tasisi, akoi nitaka ma nitakaro ia none akoi acitiafakarafia, kai taha nopogi akoi tatane sore, akoi kafakatonusia tshou norima, ma tasi foce katakaia akoi, ma takoia akoi i none akoi secitiafakarafia.

19. Tenei aia neitucua, keifakairo ta mate aia maganerefia ia Atua iateia. Wamuri aia nifasao ra iateia, aia neitucua iateia, Komy wamuri avou.

Racial Photographs from the Egyptian Monuments.—A series of 190 photographs of the various races conquered or visited by the Egyptians, was taken from the monuments by Mr. Flinders Petrie in 1887, with the assistance of a grant from the British Association. It is now available for students at the cost price of printing copies. Applications should be made for prints to Mr. Browning Hogg, 75, High-street, Bromley, Kent. If a selection is wanted, a set will be sent, any of which can be detached from the titled sheets by the purchaser, at 2*s.* 3*d.* per dozen; those not required should be at once returned in the sheets to Mr. Hogg with the remittance for those kept. If a whole set is wanted, it will be sent pasted on sheets of parchment paper, with printed titles, on receipt of 45*s.*, postage included. With each whole set, a copy of Mr. Petrie's report, and Mr. Tomkins' paper on the geographical identifications, will be sent if requested, so far as the number of copies allowed by the British Association will permit.

The photographs are mainly from plaster casts, and are therefore far clearer than if directly from the stone. Each has the ancient name from the hieroglyphs, and the modern equivalent, so far as the names can be identified. The situation of each sculpture is stated in the report. All are of the XIXth dynasty, and at Thebes, unless otherwise stated in the titles. Where an interrogation is put, either the ancient name is not expressly stated, but is inferred from similar sculptures, or else the modern name is not a certain identification. Where there are various theories on the identifications, the least unlikely has been adopted without any wish to assert its probable truth. The order of arrangement is such as to bring together the various peoples who have resemblances worthy of notice, such as the Punites and Philistines (Poeni); the Tahennu, Hanebu, and Thuirsha; the Derdeni and Amorites, &c., subject of course to placing those of one name together.

The Races of India.—The following is an extract from a letter by Sir George Campbell, K.C.S.I., D.C.L., which appeared in the "Times" of January 24th, 1888:—

"It is certainly the case that Bengalees have not served in the army and have the credit of being unwarlike. On the other hand they have shown a decided receptivity not only for English education but for European social ideas; they are often physically

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robust, and when I introduced gymnastic training in the schools they really exhibited great forwardness and aptness. *Per contra*, it must be said that they show great backwardness in filling our schools of engineering, and that they seem wanting in mercantile energy. I see the chairman of the East India Railway, referring to his rivals on the other side of India, complains that the people of Bombay are ten times as energetic as those of Calcutta. In manufactures and trade the Bombay natives certainly are very much in advance, but I suspect this in a great degree due to the presence of certain very energetic mercantile classes—Parsees and Marwarees—rather than to a very general superiority of the people of the Bombay Presidency.

At any rate, I must say that Sir Lepel Griffin's address to the people of Gwalior, contrasting unfavourably the Bengalees with "you Mahrattas," was curiously out of place. I have administered a Mahratta country in the Central Provinces, and taken a great deal of trouble to find out what is a Mahratta. Using "Mahratta" in the wide sense in which we use "Bengalee," as applied to the whole Mahratta-speaking race of Maharastetra, the Mahrattas are by no means a very warlike race, but rather the contrary—a quiet agricultural people, not very fine or robust. It is notorious that many Bombay officers used to try to fill their regiments with Hindostanees because they did not think the Mahrattas a sufficiently fine raw material. The people connected with the Royal family of Nagpore (which was, I think, connected with that of Sivajee), used to insist that the term "Mahratta" could only be properly applied to the original small tribe from the Sattara country to which Sivajee belonged. In that sense they now hardly exist. The Mahrattas whom we encountered were a miscellaneous mercenary horde comprising not only all sorts of Hindoos but very many Mahomedans from all parts of India. It is well known that neither Scindiah, Holkar, nor the Guicowa are Mahrattas in any limited sense, but represent low-caste adventurers in the Mahratta armies. Scindiah conquered the Gwalior territories, but there is not one indigenous Mahratta in all that country—it is a Hindostanee country throughout. A certain number of Mahrattas (using the term in the widest sense) followed the original Scindiah, but the great object of the late ruler was to get rid of all those having hereditary claims upon him, and the only Mahrattas who could have been among Sir L. Griffin's audience must have been a few effete pensioners. The Mahrattas who for administrative purposes would come into competition with the Bengalee Baboos are the Mahratta Bramins—a singularly acute, pushing, and distinguished race, on the whole I rather think superior to the Bengalees. But these people have accepted English education, English ideas, and what I may call "political bumptiousness," quite as much as the Bengalees—they have not the least reason to fear that they will be overriden by Bengalees.

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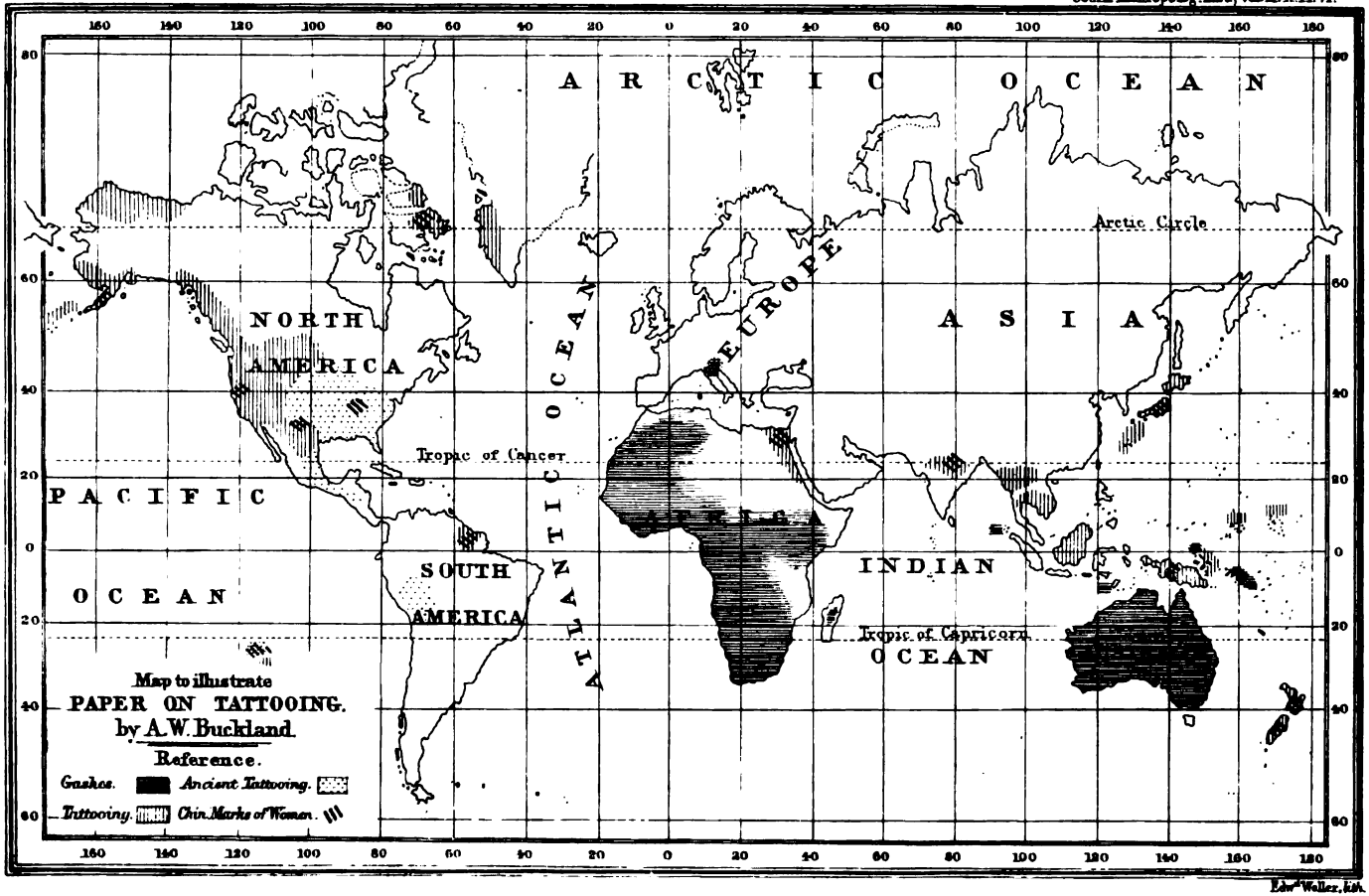

Edw.d Weller, lith.

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THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

DECEMBER 13TH, 1887.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents received since the last meeting were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Études ethnographiques et archéologiques sur l'Exposition Coloniale et Indienne de Londres. Par le Dr. E. T. Hamy.

—— Una gita fra i Calabro-Albanesi. Di Giulio Barroil.

From the PUBLISHERS.—Ratones y Orugas: origen y extinción de las especies. Por Enrique Heriz.

From Dr. GUGLIELMO KITCHMAN.—L'Ateneo:—periodico letterario, scientifico, scolastico, mensuale organo dell'Istituto Galileo-Galilei. Anno xii, Fas. 1 e 2.

From the ACADEMY.—Actas de la Academia Nacional de Ciencias de la República Argentina en Córdoba. Tom. v, Ent. 3.

From the ESSEX FIELD CLUB.—The Essex Naturalist. 1887. No. 11.

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From the INSTITUTION.—Journal of the Royal United Service Institution. No. 141.
—— A Brief History of the Royal United Service Institution. By Capt. Boughey Burgess.
From Prof. ALEXANDER AGASSIZ.—Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College, for 1886–87.
From the UNIVERSITY.—The Journal of the College of Science, Imperial University, Japan. Vol. i. Part 4.
From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. iii. No. 19.
From the SOCIETY.—Journal of the Society of Arts. Nos. 1827–1829.
—— Proceedings of the Royal Geographical Society. 1887. December.
—— Proceedings of the Society of Biblical Archæology. Vol. x. No. 1.
—— Journal of the Asiatic Society of Japan. Nos. 275–277.
—— Proceedings of the Asiatic Society of Japan. 1887. Nos. 6, 7, 8.
—— Mittheilungen des Vereins für Erdkunde zu Leipzig. 1886. Heft. 1–3.
From the EDITOR.—Nature. Nos. 943–945.
—— Science. Nos. 250, 251.
—— Revue d'Ethnographie. 1887. No. 3.
—— L'Homme. 1887. No. 21.
—— Bulletino di Paletnologia Italiana. 1887. N. 9 e 10.
—— Photographic Times. Nos. 322, 323.

The following paper was read by the Secretary :—

The MAORI *and the* MOA.

By EDWARD TREGEAR, F.R.G.S.

THERE has been considerable discussion among scientific men for some years on the question as to the knowledge possessed by the Maori in regard to the gigantic extinct bird of New Zealand, called the Moa (*Dinornis*). There is a general tradition current in the South Seas that the fair Polynesians (or Maori) were immigrants, arriving at the different groups of islands in canoes; the New Zealand Maoris having particularly clear remembrances of this event, so far as the statements in ancient legend and tradition can be relied on. If we accept these legends (confirmed by other evidence) as having a basis of fact, two interesting branches of enquiry present themselves.

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One is ethnological; if the Moa became extinct many centuries ago, yet was seen by the Maoris, some clue may be gained as to the time this race of men has been in New Zealand. The other is of interest to students of natural history; if the time of the arrival of the Maoris could be fixed, and it could be proved that they had seen the living bird, we might then be able to ascertain how long ago it is since this unique creature was exterminated.

Those who take interest in the subject, range themselves in two parties; one affirming that the Maori not only knew of, but hunted and ate the Moa; the other side asserting that the present inhabitants of the island are the descendants of men who were perfectly ignorant of the habits, use, or even existence of a huge struthious bird. I will endeavour to state in the most concise and impartial manner, what evidence, direct and indirect, has been brought forward to substantiate these opinions.

The direct evidence is that of geology. The bones of the Moa were first found in river beds and fluviatile deposits. These bones may have occurred in strata either ancient or recent, but the identical formation has not yet been decided. Mr. Colenso, Mr. Mantell, Mr. Taylor, and others are agreed in pronouncing that the bones have also been found in vast quantities near the surface of the ground, sometimes a whole plain being dotted with the small mounds formed by the bones. In the Southern Island Moa skeletons have been discovered without any superincumbent material whatever; although in a few years after the arrival of the Europeans the bone deposits had disappeared, having been destroyed by the numerous fern fires, &c. But the remains of the Moa have been excavated by the late Sir Julius Von Haast, Dr. Hector, and other geologists from native ovens buried many feet deep in soil accumulated over them apparently in the course of centuries. These bones so found have traces of gnawing and the marks of fire, and are mixed with the remains of dogs and other animals cooked at the same time. This would seem to denote that geologically the evidence preponderates greatly in favour of the opinion that the Maoris had seen and eaten the Moa, especially as stone weapons similar to those formerly used by the Polynesians are found near the Moa bones. It would seem improbable that such unresting wanderers as the Maoris, men who explored and named the most inaccessible parts of the North Island, who had thinly peopled the South Island, and who certainly visited it to get the greenstone (jade) for their ornaments and weapons, should have omitted to notice this huge bird, of great importance to a people with whom meat was a luxury, and con-

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sidering that the Moa skeletons were on the surface of the ground in our own day. The party who take the negative side of the question answer, that although it is almost certain that the Moa has been hunted and eaten by man, there is nothing to show that the hunters were of the fair Polynesian race. Tradition speaks of a people exterminated or driven into the interior of the country by the Maori; it is commonly supposed to have been a Papuan or Melanesian tribe of men, probably using stone weapons similar to those of the Polynesians. Even in these weapons there is somewhat of difference, for in some of the old deposits (notably in the kitchen-middens, containing Moa bones, at the mouth of the Otakai Creek, Otago), are found rude *chipped* fragments of tools, axes, &c., left unfinished, these having been struck from flint, chert, quartz, &c., remnants left by a people using palæolithic weapons ruder than the polished stone weapons, &c., of the Maori.[1]

The indirect evidence is that which is given by the traditions, songs, proverbs, &c., of the Maori people, and by the etymology of words, whether used simply or as compounds, names of places, or of persons. Mr. Colenso, F.R.S., in his articles on the Moa (Vol. xii, "Transactions New Zealand Institute," 1879,) has collected almost all the facts to be ascertained in New Zealand in this indirect manner. Those who can find interest in the subject will do well to turn to the book (to be found in most large English libraries), and read the full result of Mr. Colenso's researches set forth in his own scholarly words. As a brief summary of his work, I offer the following *précis*. The affirmative:—There were well known (although vague) notions current among the older Maoris concerning the former existence of a gigantic bird. Although some of these accounts were mere marvels, some stating that the creature had the face of a man, that it "lived on air," that the last living specimen dwelt on a mountain peak guarded by two great lizards (*Tuatara*), yet they identified the bones shown to them as being true Moa bones. References to the Moa in legend, song, and proverb, (though rare) may be found (I will refer to these in detail further on), and the Maoris vouched for the possession of a Moa feather used for decorating the hair of dead chiefs at their obsequies, and regarded as a precious relic. The negative:—Although every bird, animal, &c., to be found in New Zealand is mentioned in the old legends again and again, its quality as food spoken of, its habits described, its uses for ornamentation, &c.,

[1] It is recorded in legend that when the "Rangi-ua-mutu" (one of the canoes which brought the ancestors of the Maoris to New Zealand), arrived at Rangatapu, the immigrants noticed the flint-flakes (knives) and Moa bones there; apparently as if unaccustomed to them.

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dilated on, only a very few scant allusions can be found as to the great edible bird. So also in regard to the hunting scenes, the combat of demi-god and monster, while many legends narrate conflicts with great lizards, water-creatures, &c., there are no stories concerning the chase or capture of the huge feathered biped. While the tale-teller often speaks of the numerous pets and tame animals the Maoris delighted to have near them (some monstrous pets, such as the whale of Tinirau and the saurian of Tangaroamihi), the Moa is never spoken of as being the playmate or property of any hero or deity.[1] The so-called Moa feather as described by the Maoris (and not forthcoming) is represented as being ocellated and of beautiful colours, *like a peacock's feather*, while the feathers, which are almost certainly Moa's feathers, found by the Europeans with the Moa's eggs, are hairy feathers of a dull grey colour resembling somewhat those of the emu. The feather, according to the Maoris' own statement, had been found by them either blown on the wind, or else (by another account) stuck fast in a white-pine tree; there is therefore no ground except mere guessing to associate this feather and the Moa. The Maoris who had beautiful cloaks of albatross and kiwi (*Apteryx*) feathers, heir-looms of many generations, had no cloaks of Moa feathers. They had many weapons of various materials, clubs made of stone, hard wood, the ribs of the whale, &c., but none from the huge leg bones of the Moa.

Thus far tradition and possessions: the evidence of *names* is as follows:—The word *Moa*, besides indicating (*a*) the bird, means (*b*) a drill for boring hard stone; (*c*) a raised plot or bed in a cultivation; (*d*) a coarse-growing or a sea-side grass; (*e*) a certain kind of stone or layer of stone. In composition the word occurs sometimes in names of places; *Te kaki o te moa* = the neck of the Moa; *Moawhiti* = startled Moa, &c. As names of things, such as *raumoa* = Moa's feather, a kind of grass; *taramoa* = the bramble: *maimoa* = a decoy bird.

The old chiefs with whom Mr. Colenso conferred, state that the only information they possess is "anciently the land was burnt up by the fire of Tamatea; then it was that the big living things together with the Moas were all burnt." This Tamatea was a very ancient mythical hero, the fifth lineal descendant from Rangi, the sky. Other old chiefs write thus: "No man of old ever saw the Moa; the last of men, perhaps, who ever saw the Moa was in the time of Noah; because it was at the time of the overturning in the days of Mataoho[2] that

[1] See, however, Sir Walter Buller's note, p. 304.
[2] The time of the New Zealand Deluge.

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the race of Moas died whose bones are now seen. . . . . Those men of olden time, as I have said, never saw the Moa—that is, its body, its size, its length, its height, its feathers, never once. No man ever heard of the taste of its flesh, and of its appearance; or of its fat, or its skin, or its being sweet or bitter to the taste. For if, indeed, those men of old had known anything of the Moa they would have left that knowledge to be talked of and handed down to the men of after times. But inasmuch as those men of the olden time did not know, therefore it is most certain that these men who came after them did not know also."

In 1868, Mr. Colenso ("Transactions New Zealand Institute," Vol. i), stated that he did not believe that any Maori had ever seen a Moa, but after having gathered and compared more evidence, he gives the result as in the paper of 1879, from which I have been quoting, and then utters his judgment that the Moa *was* known to the Maori, but very far back in pre-historic times. As to the immense value of the facts as arranged by Mr. Colenso there can be no question, but upon the evidence thus placed before us, the reader will probably form his own judgment. My own opinion leans greatly to the negative; I cannot understand the omission of mention of the great bird in myths, hero combats, hunting scenes, lists of food at feasts, charms and incantations, descriptions of dress, ornaments (as plumes), weapons, pet animals, &c. This weighty silence coupled with the distinct denial of the chiefs that they or their fathers ever saw the Moa since the deluge, overweighs the doubtful evidence to be drawn from use of the word in compounds or the few references to some creature called "Moa" in the traditions or proverbs. But I must add in fairness that any judicial opinion offered by Mr. Colenso regarding New Zealand and its inhabitants is entitled to more respectful consideration than those of a hundred ordinary students of the question.

This then is, so far as I can learn, the position of the argument when last discussed, and to which I cannot see much probability of anything being added in New Zealand by fresh evidence in geology, tradition, or etymology. I believe, however, that we can get additional help in considering the question by studying the sister dialects of the Maori language; and I will take three of the most important as my field of study; the Samoan (Navigator Islands), the Hawaiian (Sandwich Islands), the Tahitian (Society Islands). In these three dialects, as in almost all those spoken throughout Polynesia, Moa is the name of the domestic fowl, the cock and hen of our farmyards. These birds were in the possession of the inhabitants of many of the South Sea Islands when first discovered by Europeans, but were

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unknown in New Zealand. In Hawaiian, Moa means, besides the common fowl, (*a*) the name of a stick used in play; (*b*) the name of a plant, the leaves of which, made into a tea, are cathartic; (*c*) the name of a piece of wood made to slide down hill on; (*d*) the name of a moss-like plant growing in the forests; (*e*) a kind of banana or plantain. Also Moa means "cooked," but this is a word which compares with the Maori *maoa*, "cooked," and the vowel value is doubtful. If we consider the compounds in Hawaiian they almost all refer to the bird.

Moaoua, a young cock before his spurs are grown; *moakakala*, a cock with sharp spurs (*kakala* = the Maori *tatara*, from *tara*, a spear-point, spine, thorn); *moakinana*, a hen that has laid eggs; *moamahi*, a cock that conquers, a conqueror; *moamoa*, to be or act the cock among fowls; *hoo-moamoa* (causative), to go in company with, as a cock goes with hens to give warning in case of danger, to be intimate with; *moamoa*, the sharp point at the stern of a canoe. These words all refer to the domestic fowl except the last, which is almost certainly a reference to the spur of a cock. Turning to Samoan, we find that Moa means (*a*) the domestic fowl; (*b*) the end of a bunch of bananas; (*c*) the fleshy part of the *alili* (a mollusc); (*d*) a child's top; (*e*) the epigastric region; (*f*) the middle, as of a road or river.

The compounds are *moa'aivao*, a wild fowl, and *fa'amoataulia*, to provoke a quarrel of two, as of two cocks. In Tahitian Moa means (*a*) the domestic fowl; (*b*) the name of a species of fern; (*c*) a whirligig made of the *amare* seed; (*d*) a bunch of *miro* leaves used in the *marae* (place of assembly). These share with the simple meanings of the Maori, Hawaiian, and Samoan words in giving no help to any description of the bird, or the reason for its being so called.

The compounds in Tahitian are *moafaatito*, a fighting cock; *moahururau*, a fowl of many qualities (fig., an unsteady or fickle person); *moaopapa*, a fowl without a tail; *moafiri*, a wild fowl; *moapateatoto*, a courageous cock, a bold warrior; *moaparuhi*, a cowardly cock, a cowardly warrior; *moataratua*, a cock with a long spur, a bold warrior; *moaraupia*, a peculiarly coloured fowl; *moataavae*, a fowl tied by the leg; *moatautina*, a fowl that beats all his opponents; *moavari*, a cock; *tataramoa*, a prickly shrub.

I think that it is drawing no unfair inference from the consideration of these words if we allow that the creature described in these compound words is distinctly the domestic fowl, the fighting cock, the widely-spread emblem of courage. Cock-fighting, a popular pastime among many ancient peoples, was

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a favourite sport of the Polynesians. This accounts for so many words alluding to the cock being compounds of Moa, and for the compounds of Moa not apparently alluding to anything else but the habits, &c., of the cock. If this be the case, it is highly probable that since in Hawaiian, Tahitian, and Samoan the compounds of Moa refer to the domestic fowl, *they also thus refer in New Zealand with the Maori compounds of Moa*, always reserving that there is nothing in the Maori word proving that it is inapplicable to the *Gallinaceæ;* and if in the traditional allusions, proverbial sayings, &c., no evidence can be found which shows that the word was used to denote a huge struthious bird. To pursue the investigation thoroughly, I must refer (this time in detail) to the allusions in myth and proverb. The only ancient legend in which the Moa is mentioned is that (*loc. cit.*), in the story of Ngahue. Mr. Colenso quoted the two or three lines in which the reference appears, but I consider that the quality of the evidence depends much upon the *bona fides* of the narrator, and as to the tale itself bearing the stamp of romance or of reality. So as the myth is very short, I will quote in full as it appears in Sir George Grey's "Polynesian Mythology":—

"*The Legend of Poutini and Whaiapu.*

"Now pay attention to the cause of the contention which arose between Poutini and Whaiapu, which led them to emigrate to New Zealand. For a long time they both rested in the same place, and Hine-tu-a-hoanga, to whom the stone Whaiapu[1] belonged, became excessively enraged with Ngahue and with his stone Poutini.[2] At last she drove Ngahue out, and forced him to leave the place, and Ngahue departed and went to a strange land, taking his jade stone. When Hine-tu-a-hoanga saw that he was departing with his precious stone, she followed after them, and Ngahue arrived at Tuhua with his stone, and Hine-tu-a-hoanga arrived and landed there at the same time with him, and began to drive him away again. Then Ngahue went to seek a place where his jade stones might remain in peace, and he found in the sea this island Aotearoa (the northern island of New Zealand), and he thought he would land there.

"Then he thought again, lest he and his enemy should be too close together, and should quarrel again, that it would be better for him to go further off with his jade stone, a very long way off. So he carried it off with him, and they coasted along, and at length arrived at Arahura (on the west coast of the middle

[1] Or green stone, or jade.
[2] Obsidian, with which the natives grind down the jade.

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island), and he made that an everlasting resting place for his jade stone. Then he broke off a portion of his jade stone, and took it with him and returned; and as he coasted along he at length reached Wairere (believed to be on the east coast of the northern island), *and slew the Moa there*[1]; and he visited Whangaparoa and Tauranga, and from thence he returned direct to Hawaiki, and reported that he had discovered a new country which produced the Moa and jade stone in abundance. He now manufactured sharp axes from his jade stone; two axes were made from it, Tutauru and Hau-hau-te-rangi. He manufactured some portions of one piece of it into images for neck ornaments, and some portions into ear ornaments; the name of one of these ear ornaments was Kaukau-matua (which was recently in the possession of Te Heuheu, and was only lost in 1846 when he was killed with so many of his tribe by a landslip. The axe Tutauru was only lately lost by Purahokura and his brother Reretai, who were descended from Tama-ihu-roa). When Ngahue, returning, arrived again in Hawaiki, he found them all engaged in war, and when they heard his description of the beauty of this country of Aotea, some of them determined to come here."

If there is any groundwork of truth in this story, it will be with difficulty sifted out from myth. It may be a mystical way of relating that a race using weapons of jade were driven out by another people using arms of obsidian (or edged with obsidian). The place where Ngahue is said to have landed with his greenstone (the west coast of the middle island), where he made "an everlasting resting place" for it, is the natural home of the jade; the place whence the Maoris procured all the material necessary for their weapons and ornaments. Hine-tu-a-hoanga, who expelled him from his country, we luckily know something about from another legend, not in the "Polynesian Mythology." The name means "Young-lady-standing-as-a-whetstone." She was a grand-daughter of the sister of Maui, the great demi-god of Polynesia, and, like Maui, was a magician of high rank. Her brother Rata felled a large tree for a canoe, but omitted to pay the proper respect to the Lord of Forests by offering up prayers and incantations before commencing work. In the night the "multitude of the wood-elves," assembled, and stood the tree upright again. The same thing happened the next day, and the next, till Hine-tu-a-hoanga said to her brother, "You must first rub your axe on my sacred body, as on a whetstone, then you will succeed." He did so, and completed his work.

[1] The words in italics are not in the English translation, but are in the original Maori, "*Ka tae a Ngahue ki te Wairere, ka patua te Moa.*"

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On such ground, and with such personages as these, we are in fairy-land. I cannot believe that any reliance can be placed on one or two words to be found in such a tale. Moreover, the Moa spoken of may be anything; there is no description or hint whatever. From the hundreds, nay thousands, of proverbs used by the Maoris the following have been arranged as containing the only references to the Moa which can be found:—

(1.) "The firewood with which the Moa was baked was the *koromiko*" (*Veronica*).

(2.) "*Mihiau* was the name of the stone with which the Moa was cooked."

(3.) "All have been destroyed as completely as the Moa."

(4.) "All have disappeared or perished just as the Moas perished."

(5.) "The Rata was trampled down when young by the Moa."

(6.) "Even as the Moa, feeding upon air."

(7.) "Art thou indeed a Moa that thou dost not eat?"

(8.) "A Moa living upon air."

(9.) "A Moa's stomach, or appetite."

Taking these in sequence, No. 1 tells us nothing of the nature of the food cooked. Nor does No. 2; the meaning of the word *mihiau* is lost, but it is supposed to have been a kind of obsidian. No. 3 may allude to any extinct bird, as may No. 4. No. 5 is based on the idea that the irregular appearance of a huge tree may be caused by trampling on it when it is a small plant: a proverb against evil habits in the young. Nos. 6, 7, 8, 9, are all references to the traditional habit of the Moa standing on a hill-peak "eating the wind," and were used to those who had no appetite for food, "living on air," applied to love-sick persons, &c. There is, however, a doubt as to the *original* meaning of the word here rendered *air* or *wind;* as it is also the name of an ancient charm chanted by sorcerers in order to make a person pine away and die. In none of these proverbs is there any allusion to the nature of the bird, to its gigantic size, or to any peculiar habit, unless it be its "feeding on the wind," which we can hardly refer by analogy to any existing creature, and which is probably either a mistranslation sanctified by long usage, or a pure invention of romance.

The poetical evidence is as follows. In an ancient poem called "The Lament of Turaukawa," these lines occur:—

> "I have indeed heard (from olden times),
> That the *korohiko*[1] (shrub) was by *hikuao*,
> The very tree with which the Moa was roasted
> When all its fat was melted down —"

[1] For Koromiko (*Veronica*).

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This is a paraphrase of proverb No. 1, or else the proverb is a condensed quotation from the song. The next is in a dirge for the slain :—

" Very calm and placid now the raging billows have become,
Even (as it were) at the total destruction of the Moas
When the cusps of the new moon dropped off and fell down (to earth)."

This is highly poetical, but it tells us nothing. The next is an entire song :—

" Alas ! afterwards do thou in the evening hours,
Produce and begin the talk of old,
The story of the very earliest times
Of the great ancient men :
Thus let it be, begin with the very beginning of all,
With the chief *Kahungunu;*
So that the bird's plume here present,
That is to say, of the Moa,
Shall be stuck into the hair of my principal chief
(or beloved one)."

The conclusion of another song runs thus: " Poor betrothed beauty, there thou art alone and forlorn, standing continually in the midst of the dense thicket, even as the Moa feeding on air, thy posts (supports or fences) are only for the long, shaggy, ash-coloured lichen to fly and adhere to, nothing more ! "

These quotations, the only references to be found among the hundreds of Maori poems which have been preserved, give no more clue than do the proverbs to the appearance of the bird. The compound words to be found in Maori, I give from Mr. Colenso's list. As names of places: *Te kaki o te moa* = the neck of the Moa. *Pukumoa* = belly or bowels of the Moa. *Papamoa* = Moa flat; also *Spinifex* flat. *Taramoa* = Moa's spur; also bramble (*Rubus australis*). *Taramoa rahi* = spur of the big Moa. *Hauturu moanui* = *Hauturu-big-Moa; i.e.*, possessing, or having had there a big Moa. (There are several places called *Hauturu.*) *Moakura* = red or brownish Moa. *Rauhamoa* = said to be the name also of a bird. *Moakatino* = big or fine Moa, or Moas. *Otamoa* = Moa eaten raw. *Haraungamoa* = Moa, or Moas, observed, or watched, or sought; or the spot where the skin of a Moa was merely grazed, and it got off. *Tarawamoa* = stand, or stage, erected for hanging dead Moa. *Moawhiti* = startled Moa, or doubling Moa. *Moawhangaiti* = Moa briefly waited for; *Moawhanganui* = Moa long waited for. *Moarahi* = big Moa. *Moawhango* = hoarse-sounding Moa. As names of persons: *Tawakeheimoa*—this may mean *Tawake* able to meet a Moa. (I must condense the other words.) *Te kahureremoa*—this may mean the garment which fell off, or was thrown aside in fleeing from a Moa. In names of things: *raumoa, kauhan-*

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gaamoa, *karuamoa* = names of three varieties of New Zealand flax (*Phormium*). *Hinamoa* = a grub in wood, eating and making it rotten, and yet having a fair outside. *Moai* = peaceful, quiet, as the land in a state of peace. *Maimoa* = a decoy bird—as a tame parrot, kept solely for that purpose; to decoy by means of a tame bird or bait. Mr. Colenso remarks on the etymology of this word that *mai* meaning "hither," *maimoa* would be "come hither, Moa"—an admirable name for a decoy. Williams ("New Zealand Dictionary") gives *maimoa* as "a pet, a fondling"—perhaps from the decoy bird being kept as a household pet. If such a huge creature as the *Dinornis* had been kept as a pet wherewith to decoy others of its species (as ducks are used as decoys for ducks, parrots for parrots, even tame elephants for wild ones), all mention of such inhabitants of their villages has been omitted from lists of pets, huntings, songs, and traditions. *Moamoa* and *hamoamoa* = small spherical shining mineral balls, the size of marbles, found in the earth in several places. *Whaka-moa* = to make up, or raise a plat, or heap of small stones, or of earth: to make a raised bed of earth, for planting, as in a food cultivation. *Whaka-maimoa* = to show kindness to rough, undeserving people; to make tame, civil (this from the pet or decoy word).

I have given these words with their probable meanings as suggested by our best scholar; but, he adds, "in almost every case they may mean (or originally have meant) something else; for some of them may have reference to a man, or men, named Moa; others (as *papamoa*, *raumoa*) to the seaside grass called Moa, &c."

The "Moa with a hoarse cry" may allude to any bird which has a loud note; the "red Moa" would seem to be inapplicable to the dull grey bird which (to judge by the few feathers we possess) the Moa probably was; "Moa eaten raw" tells us nothing; but there are two or three of the compound words which are of importance, if my theory that the Maoris once knew the domestic fowl and lost it, is correct. *Taramoa* = "Moa's spur," and *tataramoa* = "the bramble." The New Zealand bramble is a plant of which leaf and branch are covered (underneath) with spines curved backward like the spur of a cock. Similar thorny plants received similar names in the sister dialects; the Tahitian *tataramoa* a prickly shrub, and the Tongan *talatalamoa*, a thorny plant, being apparently equivalent in derivation to the Hawaiian (reversed form) *moakakala* (*i.e.*, *moatatara*), a cock with sharp spurs. A strong inference may be drawn that the persons who thus named thorny plants either were once altogether in a place where such plants had already received this name drawn from the "spur of

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the cock," or else that possessing a thorough knowledge of the qualities and fighting weapon of the cock, they had separately dropped upon a common term for thus describing prickly shrubs; of course the presumption is against such coincidence, and in favour of the plant having received its name before the dispersion. But, if so, although the cock was unknown in New Zealand in the days of Cook, it is practically good evidence that the forefathers of the Maori were once acquainted with it. The other important compound is the Maori word *tautauamoa*, defined by Williams in his "New Zealand Dictionary" as "a quarrel in which few take part." This may apply to the *Dinornis* if we could find out enough concerning its habits to show that it was of a combative nature; but beside this word, I set one of identical etymology in Samoan, *fa'amoataulia*, "to provoke a quarrel of two, as if of two cocks"—(Pratt, "Samoan Dictionary"). *Tau*, in Maori, means "to attack," and *taua*, "a war-party." *Tau*, in Samoan, means "to fight," and *taua* "a war-party." The Samoan word dissected stands thus *fa'a*, a causative prefix, "to make" (answering to New Zealand *whaka*), *tau*, to fight, *moa*, a cock, *lia*, verbal termination. Thus the *modern* Maori interpretation, "a quarrel in which few take part," resolves itself into a probable "cock-fight."

I believe these two etymologies to be of great importance. If the Maoris, having lost the domestic fowl, applied to the older men (who had seen or heard of it) for a picture or representation of it, perhaps the image of a crowing cock, with its beak open, would be presented to them, as it is so often among ourselves on signs, trademarks, &c. This may account for the "feeding on the wind" notion; and the connection of the word Moa with the enormous bones, may have arisen in the following way. If the island was inhabited, as some traditions say, by an aboriginal race, the exterminators of the Moa, these autochthones, either as slaves, or before their utter extinction, may have passed on the tradition of the huge lost bird to the Polynesian new-comers. Or, the stories concerning the Moa bird being a large one, may have been but the child of that wonderful spirit of romance and love of the marvellous which, growing with endless repetitions, magnified the lost bird of their forefathers to gigantic dimensions. The lizard-monsters (such as *hotupuku*) destroyed by ancient heroes were like "moving hills"—the water-creatures (such as *pekehaua*) similarly described, were the size of "whales," although we know of no lake-dwelling, or river-dwelling reptiles growing to anything approaching such bulk; antiquity magnified them, as the mists of the Brocken magnify men into enormous spectres. The discoverers of the Moa skeletons state that they (the Europeans)

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first informed the Maoris that the bones were the bones of a *bird*. Mr. Colenso states that pictures representing the *Dinornis* as "reconstructed" were shown about, and rewards offered all over the island for the discovery of skeletons of the Moa; that the young natives taught at the Missions dispersed everywhere through the country, and that thus conversations were started in every Maori village concerning the great bird. It is possible that the statement of the Europeans that the bones of a large bird which had once existed were wanted, and the traditional stories of the Moa (domestic fowl) swollen large by time were fitted together and produced strange freaks of memory concerning half-forgotten tales. It can hardly be believed that the Samoans, the Hawaiians, the Tongans, the Tahitians, &c., were acquainted with the *Dinornis*, or named their thorny plants, or their "quarrel of two," from any reminiscence of the huge bird of New Zealand.

In whatever way the question may be settled as to the Maoris connecting the bones of the *Dinornis* with the word Moa, I believe that this paper offers strong reasons for believing that—

1st. The Maoris, like all other Polynesians, once knew the domestic fowl.

2nd. That they knew the domestic cock as Moa.

Discussion.

Sir Walter Buller, who was unable to be present, sent the following note:—At the hearing of an important case in the Native Land Court at Rangitikei, (in 1883), which arose out of a disputed tribal claim to a large block of land, evidence was adduced, in support of the Ngatiapa title by occupation, that the ancestors of the tribe migrated from Taupo to the sea coast in consequence of a quarrel over a pet Moa belonging to Apahapaitaketake. The tradition was clear and circumstantial, and was accepted by the rival claimants as genuine and trustworthy. The facts (as preserved by oral tradition), are set out fully in the final address of Sir Walter Buller, who acted as Counsel for the Ngatiapa, and whose speech was afterwards published, in pamphlet form, by Messrs. Lyon and Blair of Wellington, New Zealand.

Dr. P. L. Sclater was of opinion that, in the face of the evidence that had been brought forward in New Zealand, it could hardly be doubted that the last remaining Moa had been exterminated by man, and that, looking to the freshness of some of the remains (portions of skin, feathers, &c.), this could not have taken place at any very remote period. But, whether this had been done by the Maoris, when they first arrived in New Zealand, or by some pre-existing race was perhaps uncertain, although he had always believed that it had been done by the Maoris.

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Mrs. CAREY-HOBSON suggested as a reason for the Maoris having the word "Moa" as a name for bird, that it appears that some of the New Zealand birds have a note which sounds like "Moa," for instance, the Maori hen in the bush calls "Moaraine, Moaraine," another bird "Morepork."

Mrs. Carey-Hobson found in South Africa, that the natives called several birds after their notes, as the *Bromma*-bird, the *Koor-haau*, the *Hoo-poo*, and many others.

As to other articles mentioned in the paper as also sometimes designated by the word Moa, was it possible that the bones of the bird were used in their manufacture?

Mr. WALHOUSE remarked that if the Moa existed up to comparative recent times, the remembrance of it might nevertheless have died out amongst the Maoris, and there might be no allusions to it on their traditions.

The disappearance of a conspicuous animal, once existing, from popular memory may be elsewhere paralleled. Thus the common brown bear was certainly not unfrequent in Britain during the Roman occupation, and probably for some time after, but, though speaking with diffidence, he did not know that there is any allusion to it in the early English writers, and so large an animal might have been expected to survive in popular talk and story, as it does in Germany to-day. The beaver, that probably became extinct not long after the bear, is often mentioned in Welsh poetry, but not the bear. Again, it has been surmised, though on doubtful grounds, that the gigantic Irish elk, which must have been amongst mammals what the Moa was amongst birds, may have been contemporary with the early inhabitants of Ireland; but though Irish literature and tradition go back to a great antiquity, there is no allusion to or remembrance of it.

The following paper was read by the Assistant Secretary:—

On the SHELL-MONEY *of* NEW BRITAIN.

By the Rev. BENJAMIN DANKS.

THE shell-money of New Britain is a very important factor in the life of a New Britain savage. Any account of the New Britain people, their lives and their customs, will fall short of what it should be if this important currency is not discussed.

The name of this money on the Duke of York group and New Ireland is Diwára. On New Britain it is called Tambu.

There are other kinds of money in the group. (1.) The Lideran of New Ireland, which is composed of different kinds of shell broken into flakes and ground down into circular form to

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the size of an ordinary glass bead. A hole is bored through the centre of each bead, and threaded upon string. Lideran is made thus into lengths measuring from the nipple of one breast to the nipple of the other, and a length has its fixed value. Seven or eight of these will make one fathom, and in New Ireland one fathom of Lideran will purchase more than one fathom of Diwára. But the Lideran is only of local value, being considered of no account outside of New Ireland. (2.) Another kind of money is made at a place called Mioko in the Duke of York group. Its name is Pele. This is bought by the New Britain people who carry it westward to a place called Nakanai, which is about 100 miles from Mioko. Pele is of little value for general purposes either at Mioko or any part of New Britain—except, perhaps, at Nakanai, where it may form a currency. So far as we know at present its sole value lies in its power to purchase the Tambu at Nakanai. Those who make it sell it to the New Britain people at the rate of four or five lengths for one fathom of Tambu. Each length reaches exactly from the nipple of one breast to the nipple of the other as in the case of the Lideran. For the four or five lengths of Pele enough shells of which the Tambu is made, may be purchased at Nakanai to make two or three fathoms of Tambu. Pele is made of a very common pearl shell which is split up into flakes. The flakes are broken in pieces to the size of a shirt button, holes are then drilled through the centre and the flakes are ground perfectly round to one size about $\frac{3}{16}$ inch in diameter, and threaded upon string. (3.) There is another kind of money obtained in New Ireland, but from what I can gather, it is only used in the purchase of pigs. It seems to be more an article of barter, the value of which is a large pig, than a currency.

2. The shell of which Tambu is made is very small. It is procured from the people who live on the N.W. coast of New Britain. I have not been able to ascertain the exact part of the coast. In company with the Rev. G. Brown and others I went to the place where the people from the Gazelle Peninsula purchase it. When we asked the people where it was obtained they pointed us still further west. I have seen ornaments from the east coast of New Guinea, and from that fact think that possibly the shell may be found on Brooks Island between New Britain and New Guinea. When purchased at Nakanai the shells are just as they are found upon the beach or dug from the earth. They are done up in packets varying in size, and consequently in value also. The secret as to where they are obtained is very jealously kept by the Nakanai people. I have never found one man in the Gazelle Peninsula who had the faintest idea as to its whereabouts. It is evidently a trade secret, kept close by the

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Nakanai people in order to prevent the Pele and other trade from passing their country.

3. When brought from Nakanai, each man sits down and threads his shells on long strips of cane. A hole is first punched through the back of the shells. The strips of cane, which are about two feet six inches in length, are scraped or pared down to the required size, and the shells are then strung. To join these pieces of cane one end of one piece is made wedge-shape. One end of another piece is split a little down the centre. The wedge end of the one piece is put between the two halves of the split end of the other piece, and a few shells are drawn over the splice, binding the two sides of the one piece on the wedge of the other. This process is repeated until all the shells are strung into one long length, which is then rolled up into coils ranging from sixty to four and five hundred fathoms. The coil is then carefully and neatly wrapped up in banana leaves and suspended in the treasure-house until required.

4. The money thus prepared is the national currency. By it trade is carried on and it enters largely into every custom and ceremony of the land. It can be, and is, divided as easily as we divide our pounds into shillings and shillings into pence. For the sake of illustration let their fathom of Tambu be represented by our £. Then half fathom = 10*s.* Quarter fathom = 5*s.*, and lowest of all two shells may represent our farthing. The length we have called a fathom is the distance between the two hands, when they are stretched out straight in opposite directions. A man is praised according to the good full measure he gives, and execrated according to the short measure he may give. The word for purchasing a thing is *kul.* The word for barter, *i.e.*, exchange of produce, is *buapa*, thus showing that the two ideas are as distinct in the minds of the natives as they are in our own.

There are fixed prices for some things. Prices for other things differ, as with us, according to the law of supply and demand. All articles of food remain at much about the same price. The following is a list of prices obtaining in New Britain :—

Salmon, large	½	fathom	Tambu.
Fowls according to size	½ to ¼	„	„
Breadfruit, sixty for	1	„	„
Taro[1] and yams according to state of crop, if plentiful, sixty for .	1	„	„
If scarce, fifty for	1	„	„

[1] In purchasing vegetable food, it often happens that a man will buy the whole of a neighbour's crop before it is dug, for a greater or smaller sum according to the size of the plantation and yield. I have purchased crops thus at from ten fathoms to twenty and twenty-five fathoms of Tambu.

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Betel-nut, a large bunch	..	¼ fathom Tambu.
Twelve, betel-nuts ..	..	4 shells only.
Canoes,[1] large		20, 25, 30, 50 fathoms Tambu.
„ small		7 fathoms and upwards „
Pigs according to size, from	..	7 to 10 fathoms „
Dogs „ „ „	..	2 to 3 „ „
Cockatoos[2]	..	2 to 5 „ „
2 yards print	..	1 „ „
1 tomahawk (good) ..	..	3 to 4 „ „
Large plantation knife ..	..	3 „ „
Large fishing nets ..	..	40 to 50 „ „
Small fishing nets ..	..	1, 2, 3, 4 „ „

5. Husband and wife possess this money quite independently of each other. The children also, almost as soon as they can understand anything, are taught that the acquisition and retention of wealth is an important, if not the most important, duty of life. To let money go for nothing in return or to pay a shell more than is necessary for an article is considered the height of folly. Consequently little boys and girls have their little store and bank, and are keen traders. A wife, however, is often despoiled of her money by her husband. Not indeed by force. That would be an invasion of the rights of property, and an offence against the public conscience. The husband perhaps gets up a charge of adultery against his wife, he becomes very angry and threatens to do her bodily harm unless she pays him so much money. Often she is charged with saying something derogatory to him. She is then made to pay for "defamation of character." She pays in order to escape bodily harm at the hands of husband. Often enough the charge is true, but often it is not. In either case he gets money from her.

6. Money is lent at the uniform rate of ten per cent. It is the custom on Duke of York, that when a person wishes to borrow money he must return eleven fathoms for ten fathoms borrowed. The word for interest there is *wawaturu*, thus showing that the idea of usury is perfectly understood. On New Britain the idea is not so fully developed. I have not found on New Britain[3] a word equal to the Duke of York word *wawaturu*. *Kumbika* is the New Britain word which most resembles the Duke of York word. Its literal meaning is either a present, or to

[1] The price of canoes depends upon their quality as well as upon their size.

[2] The price of a cockatoo varies in different parts of the group. The price stated is paid in Kabakada.

[3] When New Britain is mentioned, it must be remembered that we refer to that part of it with which we are familiar. New Britain is 300 miles long, and there are many places where white men have never yet been.

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present, to give, to pay. When money is borrowed, however, it is never returned without a fathom for every ten fathoms borrowed, but the idea in the native mind does not seem to be so much interest, as an expression of thanks for the favour. It amounts practically to the same thing, but there is a difference in the native mind.

7. A New Britain native has an aversion to breaking in upon his capital. If a man has a coil of money but no "change," and requiring for his present need only a few fathoms, he will take his coil and pawn it for as many fathoms as he requires. The coil is kept by the lender until the sum is repaid with interest upon which the coil is returned to its owner. This custom is called the *vuvuring*.

The people greatly deplore the loss of this wealth from the community and will do much to avert it. If a rich man is offended and threatens to remove to another town, his friends and sometimes many of the leading men of the place will pay him something to remain with them.

One man often becomes a banker for a number of men. He is generally a man who is feared and who has a reputation for valour and a good following. His house then forms a rallying point in times of trouble for all those who have lodged money there. He thus becomes a person of influence and power, because, no matter what villany he may perpetrate, the depositors rally round their money to defend it, and in so doing defend him. I do not know that he is held responsible for anything which may be missing. I have known cases where the banker has been offended by one of the depositors, and he has refused to give back the deposit, claiming it as compensation for the offence. Being feared by the offender, nothing has been done. I have also known young men deposit money with their uncle *i.e.*, their mother's brother, and the uncle has used the money as his own. There seems to be no redress in that case. I have never heard of any banker using or making away with or retaining money belonging to others except in the above cases.

8. A borrower comes more or less under the influence and power of the lender. If the borrower is a young man and has borrowed money to purchase a wife, or if a person has purchased a wife for him, he is then more or less at the bidding of the lender until the loan is repaid. All initiation fees into various clubs or societies are, as a rule, paid by the elders or chiefs,[1]

[1] I use the word "chiefs" for the sake of convenience, but the status and power of these men is far from equalling that of the Polynesian or the Fijian chief.

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thus bringing the boys and young men under their influence. If a borrower shows a disposition to be restive, he is at once reminded of his obligation to pay, and the "screw" is as powerfully applied as with us. If a man refuses to repay a loan, he is thenceforth a marked man. His character is gone. He is called a "*watukum*," meaning an embezzler. None will lend him money in the future. Some young men cannot marry for the simple reason they cannot purchase a wife, and no one will lend them money because they are lazy, or have not been able to make money in the past, and there is a doubt as to whether they will be able to make it in the future.

9. *Partnerships* are entered into by the people. Two or three will own a fishtrap or a number of them, or perhaps a large fishing net. The proceeds of the sale of the produce are carefully counted at the conclusion of the day's work and equally divided, or it may be the profits are divided at the end of a season. Trading and other ventures are jointly carried on and strict accounts kept, each partner being a check on the others. The strength of their memory in money matters is astonishing. Large plantations are made by a number of people and the produce sold. The greatest source of wealth to the coast tribes lies in their trading for the shell of the Tambu, and in the products of their fishtraps and plantations.

10. *Atonement of Wrong* is made by the payment of Tambu, the amount fixed being according to the wrong done. This fact has a great restraining influence upon New Britain society. Thus:

(*a.*) When war has been carried on for any length of time, and persons have been killed or injured, no peace can be made until the friends of the killed and wounded, in the latter case the wounded themselves, have received compensation from the enemy. Each side must pay the other for damage inflicted. This reciprocal payment, if I may so call it, is shown in the word used to express both the act and the action. On Duke of York it is *wekul*. On New Britain it is *warakul*. *Kul* = buy, pay: the *we* on Duke of York, and the *wara* on New Britain denotes reciprocal action. Thus, *wekul* and *warakul* literally mean paying each other. The side which was originally wronged receives any sum mutually agreed upon in satisfaction of the original wrong out of which the war sprang, in addition to payment for whatever injury may have been inflicted during the fighting. This money is paid, not out of any public fund, but by the parties principally concerned. While so much as a single wound is not atoned for, peace cannot be considered likely.

(*b.*) Because of the lack of all constituted authority among the people, simple and ordinary quarrels lead to serious ones. There is no one man vested with power or authority who can

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say "cease," when any quarrel has reached a certain stage. All peace is arranged by common agreement, mutual consent, not by personal authority. Take the following examples:—

(I.) To Meli and To Delu were two boys. To Meli put an iron ramrod into the fire, and when it was hot he drew it across To Delu's bare back. To Delu was incensed at this, and at once ran to the beach and cut down some crotons belonging to To Rumu. To Rumu was angry at the loss of his crotons, and he went along the beach and smashed a canoe belonging to another man. The owner of the canoe went and broke two canoes belonging to another man. The owner of the two canoes burnt down another man's house, and even more mischief still sprang out of To Meli's practical joking. All now thought that the matter should be settled. To Meli had to pay To Rumu for the crotons which To Delu had cut down, because by burning To Delu he had been the cause of the crotons being cut down. To Delu who had been burnt, had to pay for the broken canoe, because he, by cutting down the crotons, had caused the canoe to be broken. To Rumu by breaking the one canoe had caused the two canoes to be broken, and so he had to pay for them. The man who smashed the two canoes caused the house to be burnt down so he had to pay for that. So every account had to be settled until they found a man whose property had been injured, but who had injured none in return. His claim would then be paid and the matter ends. It will be seen that the boy who was burnt got nothing for the injury done to him. However, by cutting down the crotons he had forced To Meli to pay for them, and in causing him to lose money by such payment he found a little satisfaction; he had also involved others in loss of property which caused them to be angry with To Meli, whose position was an unenviable one for some time after.

(II.) A is a poor uninfluential man. B wrongs him. B is rich, or at any rate richer than A, and has more influence in the place. There is no government or authority to which A can apply for redress. But there is custom which has the authority of law. There are four things A can do. (1.) He can appeal to B, and if he can persuade, by promises of payment, upon a number of men to stand by him, his appeal may be listened to and his claim for compensation satisfied. If he has no backers his appeal will not be heard unless B fears further trouble. (2.) He may take the course which To Delu took in the above example. But in that case he will only have the satisfaction of getting B into difficulties, and at the same time stands a chance of having to pay something himself. (3.) He may watch his opportunity, and seize the canoe of some chief or powerful warrior of whom all are afraid: such an act is

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never resisted by the owner for he will be paid, or, entering the dreaded man's treasure-house, he may take out a roll of Tambu, and taking it to his own house, he may hold it until B compensates him for the injury done. The canoe, or Tambu, or gun, or tomahawk, or whatever may be seized by A is taken much care of as he is held responsible for any harm done to it. It often happens that atonement is made at once as soon as the great warrior has been thus dragged into the quarrel. (4.) On the Duke of York Islands and sometimes on New Britain, A may go to a chief, who, as a bad, unscrupulous man, is feared, and by the presentation of a fee engage that chief to assist him. Thus:—A values the damage done to himself or his property at thirty fathoms of Tambu. He takes three fathoms of Tambu and lays them down before the chief. Each of those three fathoms represents ten fathoms. Thus A really pays beforehand the ten per cent. interest. (I am not sure that the chief gets another ten per cent. out of B when the whole loan is repaid, but it would be quite contrary to a New Britain man's nature if he did not try). If the chief deems himself capable of frightening B into repaying him, he does not hesitate to pay A the thirty fathoms represented by the three fathoms. But if he thinks this to be beyond his power, he will not risk his reputation by advancing the money. It would be a serious loss of prestige if he were to fail. If the money is advanced and B refuses to pay the chief, there are three courses open to the latter. (1.) He may seize on anything belonging to others and hold it until payment is made, thus involving others on his side against B. (2.) He may demand repayment under threat of bodily harm. (3.) He may refuse to issue more loans to anyone until payment is made by B. I have only known the latter course to be taken twice, and in each case the offender has been glad to pay, for every applicant for a loan being refused, and knowing the reason why, turns against the man who is the cause of his being sent away empty-handed.

11. All claims are adjusted by the popular voice, *i.e.*, all have a voice in the settlement. A violent man however, may frighten an offender into paying an extravagant price. As a rule, when atonement is made, the price of an article destroyed is fairly met. It sometimes happens that the injured suffer considerable loss. Women and young people who are not well backed by their friends will nearly always lose. Apart from force, there is little or no justice. Public opinion is a great factor in the adjustment of all disputes, but, as already shown, a violent man may over-ride all public opinion.

12. The manner in which public opinion is appealed to is as follows:—

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The people live in families, *i.e.*, father and mother with their children, and as many of their kinsmen who may wish to live with them; each family or kinsmen having separate houses of their own, and all the houses may be enclosed by one fence, or each house may have its own fence, but erected very close to each other. Hence if one member is injured, all the family know it at once. If kinsmen are living at a distance they are informed as soon as possible of the occurrence. A man's own kin are bound to stand by him even though he be altogether in the wrong. They gather together and make a great noise, shouting and threatening the wrong-doer. This attracts the attention of the neighbours who run together to see what is the matter. The injured man and his kinsmen, together with their following, which may include as many as like to see a row, go near the place where the offender lives,[1] and send one of their number to him and his friends (who have gathered together, on the first sign of a disturbance) with terms of settlement. It may take hours to arrange the terms, two or three messengers continually going to and fro between the parties, until the affair is settled. There is no lack of communication. All the townsfolk, not personally concerned in the quarrel, are ready for the office of go-between, and seem very happy in being so employed. One, or perhaps two or three of them, may be selected, and these are recognised by both parties as fully accredited; but they have no power to dictate terms of peace. They are simply messengers from one party to the other, and the parties themselves must decide whether the terms proposed are to be accepted or rejected. The initiative is always taken by the injured person if he is able, if not then by the nearest kinsman who may be present. In the case of a woman or a child being injured, the husband, uncle (*i.e.*, mother's brother), father, or nearest kinsman or kinsmen present, take the matter up on their behalf.

The principal parties on either side are, of course, the injured person and the wrong-doer, but they are considerably influenced by their friends and following, though if the offended man choses to accept the compensation offered, he may do so even against the advice of his friends. The affair generally takes the form of a haggling bargain. A is injured by B. He sends a go-between to B with the message that he will be satisfied with, say, ten fathoms of Tambu. B gives the messenger five fathoms. This is rejected and the money goes back. B adds a little more, and this is repeated until he sends his ultimatum, that he

[1] This course is taken when reason holds sway, but if passion, then some violence is attempted at once.

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will not give another shell. This is generally accepted, but if not, any of the methods of redress already mentioned may be resorted to.

If the quarrel cannot be settled without a fight, either party can obtain the help of a number of men by paying them for it, while the neutrality of any influential man, who is supposed to be likely to favour the other side, may be secured by a sufficient bribe. This is called *vitar ia* = "tying or binding him."

I am of opinion, though I am not certain, that offences against the intersexual laws based on the exogamous intermarrying divisions, viz., *Maramara* and *Pikalaba*, noted by Fison and Howitt in "Kamilaroi and Kurnai," cannot be atoned for by money payment. Death is the penalty to the woman at least. Her male relatives would be so ashamed they would kill her at once unless she could escape. But so strictly are the regulations observed, that I never knew of a case of infringement of them excepting by report. Thus, I heard of an old chief on New Ireland who broke the law; but he was too powerful and the people too few, for them to do anything but grumble about it.

13. The possession of Tambu has a very important influence on the lives of the New Britain people. Thus:—

(*a.*) *It minimises the evil and fatality of war.* The fighting is as often undertaken for compensation as for revenge, the object of the contending parties being, not so much to injure as to frighten the other side into making an offer of money. This, coupled with the fact that every life taken, and every wound inflicted in the fight must be paid for—the payment for the former ranging from fifteen to fifty fathoms, the latter according to the nature of the wound—restrains in no small degree their desire for blood. Should the wound have been atoned for and the man die afterwards from its effects, then the whole life must be paid for. In one instance an old man was supposed to be dying. Years before that a man had wounded him with a spear, and it was said that a piece of the spear still remained in the old man's body. To this piece of spear was ascribed the old man's illness, and if he had died the man who speared him would have had to pay for the life. While this law of atonement restrains their thirst for blood in a great measure, it must still be borne in mind that not a few cases arise, in which rage, desire for vengeance, and jealousy override all prudential and economic considerations and only life and blood can satisfy the infuriated man. Cruelty and lust abound in New Britain even with this powerful restraint, and one who is at all acquainted with a New Britain man cannot but shudder at the very thought of what he would be if the restraint were not.

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(*b.*) *It establishes personal right to property*, and the right to alienate that property by sale or gift independent of anyone else. The whole town or family may be against the sale or gift, but has only the power to protest and cannot prevent it if the person is determined to sell. This right extends even to women and children. The writer has purchased land (for mission purposes) from women who insisted upon selling even against the wish of their friends. The sale completed, its validity has been recognised. I have known persons who have objected to the sale of a thing make a present to the owner of a fathom, and sometimes more, of Tambu to induce the owner not to sell. A native generally listens to that argument.

(*c.*) *It makes the people frugal and industrious.* No man is held in greater contempt than a spendthrift. In point of fact such a person is scarcely known. Nothing is wasted. In purchasing, a man will only buy just as much of anything as he requires for the time being. Hence we see no wholesale business done. One venture at a time is the business maxim of the New Britain people. Plantation produce is the one source of wealth for the inland people. A bunch of bananas will bring, according to size, from a quarter to a whole fathom of Tambu. Cocoa-nuts from sixty to one hundred per fathom. Hence the inland people are nearly always at work at their plantations. They are either in them, or preparing something in connection with them, or selling the produce. Market is held on the coast every third day in a large number of places. Those who live very far back inland have their inland markets where they sell to those nearer the beach, who in turn sell what they buy to the coast people. These markets are so arranged that two are seldom held near each other on the same day. A man taking his produce to one market to-day, may take more to another to-morrow if he is so disposed, and it is safe for him to do so. The coast people meet the inland people at these markets with their fish and articles of European manufacture, and either sell them for Tambu or barter for food and other things only obtainable in the country.

On the coast, fishing, in addition to plantations, is a source of income. The fishtrap is unique, and takes two or three weeks to make, and when finished it is quite a work of art. It costs in all, including the cost of food and wages for those who assist, and the cable to anchor it by—often 500 fathoms long—about six or seven fathoms. Men work from early morning till late at night making these traps. By the time the traps are made plantations require attention. Only those who know nothing about the New Britain people will call them lazy. After a residence of nearly eight years among them the writer has arrived at the conclusion

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that, comparatively speaking, they are as busy as Europeans are. There are and have been parts of Duke of York, New Ireland, and New Britain where enforced idleness and therefore want and wretchedness existed in the most debasing degree. But when Christianity has stepped in and made peace where peace was scarcely ever known, idleness gave place to industry and wretchedness to comparative comfort and wealth. The innate industry of the people shone forth the moment property and life became in any degree safe. I have known a man make fifty fathoms of Tambu during the fishing season, and ten or twelve fathoms from his plantations.

(*d.*) *It makes them a commercial people.* By the aid of intermediaries their commercial transactions extend to places they have never visited. But they never, or very seldom, trust their money with the intermediary. He buys the article with his own money and sells it to them for theirs, making what profit he can by the transaction. In the old heathen days Kinawanua people, a town on Duke of York Island, could go to one town on New Ireland and there trade for goods from that place and sell their own. Waira, another town, had its place also. Nakukuru people could cross over to three places on New Britain and do their trading. It is needless to say that through the establishment of mission stations in each town, trade is now carried on between New Britain and other parts of the group with almost perfect freedom. A bargain once made and concluded is seldom or never disputed. All disputation and haggling is done previous to the conclusion of the bargain.

14. While Tambu has brought some benefit to the New Britain people it has not been an unmixed blessing. To it, or rather to love for it, may be attributed in no small degree their intense selfishness and their glaring ingratitude. The expression of gratitude often leads to a little expense. Hence gratitude is too expensive a luxury for a New Britain man to be acquainted with. A spirit and life which is unselfish must often suffer loss. A New Britain man cannot afford that. A people whose greatest love is reserved for money, and whose highest aim is to get money, is an exceedingly hard-hearted and an intensely selfish people.

15. There are other matters closely connected with this shell-money. Its influence is supposed to extend even to the next life. There is not a custom connected with life or death in which this money does not play a great and a leading part. I am convinced that the man who best understands the uses and power of Tambu, be he missionary or trader, will carry the greatest influence amongst the people, because in understanding

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that subject he will be led almost into the secrets of their very hearts, and their life will be understood by him as though it were spread out before him as a chart. Take away their money and their secret societies sink at once into nothing, and most of their customs become nothing. I do not pretend to have exhausted the subject in this paper, and hope that some missionary resident in New Britain will make Tambu a subject of special study, and give to ethnologists complete information on this subject, which a student of island customs has called "commercial savagery" and "a new and most interesting phase of savage life." Not that money of this kind is unknown elsewhere, but that nowhere else, so far as we have hitherto been informed, has it so powerful an influence on savage life and custom.

JANUARY 10TH, 1888.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of MONTUORI JOSEPH ODGERS, Esq., Assistant Professor of English Literature in the Government College, Lahore, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the PREMIER OF VICTORIA.—Prodromus of the Zoology of Victoria. By Frederick McCoy. Decades I–XV.

From the DEPARTMENT OF MINES, NEW SOUTH WALES.—Annual Report for the year 1886.

—— Geology of the Vegetable Creek Tin-Mining Field, New England District, New South Wales. By T. W. Edgeworth David, B.A., F.G.S., Geological Surveyor.

From Mrs. CRAWSHAY.—Essays written for the Byron-Shelley-Keats In Memoriam Yearly Prizes for the best essay in English written by a Woman. Jubilee edition.

From the AUTHOR.—Notes on the Ethnology of British Columbia. By Dr. F. Boas.

—— The Eskimo Tribes. By Dr. Henry Rink.

—— Preliminary Report on the Marine Fauna of Rámeswaram, and the neighbouring Islands. By Edgar Thurston.

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From the AUTHOR.—Abnorme Eberhauer, Pretiosen im Schmuck der Südsee-Völker. By Dr. O. Finsch.
—— Czaszki Przedmieszczan Krakowskich, z xvii, i xviii wieku. By Prof. Dr. I. Kopernicki.
From the SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. iv. No. 1.
From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1887. Heft v.
From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St.-Pétersbourg. Tom. xxxii. No. 1.
From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. No. 69A.
From the INSTITUTION.—Journal of the Royal Institution of Cornwall. Vol. ix. Part 2.
From the SOCIETY.—Proceedings of the Royal Society. No. 259.
—— Journal of the Royal Asiatic Society. Vol. xx. Part 1.
—— Proceedings of the Royal Geographical Society. 1888. January.
—— Journal of the Royal Geological Society of Ireland. Vol. xviii. Part 2.
—— Journal of the Society of Arts. Nos. 1830–1833.
—— Proceedings of the Society of Biblical Archæology. Vol. x. No. 2.
—— Boletim da Sociedade de Geographia de Lisboa. 7ª Serie, No. 2.
—— Notulen van de Algemeene en Bestuurs-vergaderingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel xxv. Aflevering 3.
From the EDITOR.—Nature. Nos. 946–949.
—— Journal of Mental Science. No. 108.
—— American Antiquarian. Vol. ix. No. 6.
—— Science. 252–255.
—— Photographic News. Nos. 324–327.

The PRESIDENT announced that the Annual General Meeting would be held on Tuesday, January 24th, and nominated Mr. E. W. BRABROOK and Mr. J. E. KILLICK, Auditors.

Miss BUCKLAND read the following paper:—

On TATTOOING.

By A. W. BUCKLAND.

[WITH PLATE VI.]

THE subject of tattooing does not appear to me to have occupied the attention of anthropologists as much as its importance war-

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rants. I therefore propose in this paper to bring forward a few facts in connection with it, which seem to strengthen the chain of evidence bearing upon that prehistoric intercourse which I believe to have existed between widely-separated peoples.

Falling under the head of ornament, it seems probable that this painful mode of personal adornment was adopted at a very early period of human history, and was at one time almost universal, falling into desuetude with the advance of civilisation when clothing became general, and ornaments were chosen which would not entail pain, and could be varied according to the caprice of the wearer. But even to the present day tattooing forms the *dress* of the great mass of the unclothed natives in various parts of the world, whilst in some places it is more than a personal adornment, forming a ceremonial rite accompanying initiation into manhood. In some places men only are tattooed, in others women alone are thus adorned; but there is generally some story or legend given to account for the preference awarded to one sex over the other, as, for example, in Samoa, where Mr. Turner[1] tells us that Taema and Tilafainga, or Tila the *sportive*, were the goddesses of the tattooers. They swam from Fiji to introduce the craft to Samoa, and on leaving Fiji were commissioned to sing all the way, "Tattoo the women but not the men." They got muddled over it in the long journey and arrived at Samoa singing, "Tattoo the *men* and not the women;" and hence the universal exercise of the blackening art on the men, rather than the women.

There are two principal modes of tattooing. In the one which is probably the oldest, cuts are made in the flesh in such a manner as to leave a cicatrised mark, but generally without the addition of any colouring matter. In the other a pattern is drawn on the skin, which is afterwards pricked in with needles or other sharp pointed implements, various colouring matters being rubbed into the wounds, so as to produce a permanent picture.

The first method prevails in Australia, where many of the natives are scarred in a remarkable manner, some of those exhibited in England last year having the shoulder cut and scarred, so as to resemble a great tassel, like a footman's shoulder-knot. But although the custom of thus gashing the shoulder, back, and breast seems in some parts of Australia to be almost universal, it does not appear to be connected with the elaborate initiation ceremonies; it may, however, probably have a tribal signification. This mode of tattooing by cuts,

[1] "Samoa," by George Turner, LL.D., page 55.

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leaving raised cicatrices, which Mr. Tomkins suggests should be named *gashing*, prevails with modifications, all over the African continent. On the west coast, three cuts on each cheek would appear to be the chief decoration, and these cuts are coloured red and blue, according to the masks and other representations brought over for the Colonial and Indian Exhibition.[1] It is not a little singular that these three cuts appear in a bronze head of great antiquity from the Necropolis of Marzabotto, Bologna, Italy. This head is engraved in the Smithsonian Report of the Bureau of Ethnology for 1882–83, from which I have taken some of the material for this article. I cannot meet with any account of the origin of these three cuts, but believe they may perhaps have some religious as well as tribal significance, for Dr. Holub, speaking of similar cuts on the breast of a Koranna says :—" They have among themselves a kind of freemasonry. Some of them have on their chest three cuts. When they were asked what was the reason of it, they generally refused to answer; but after gaining their confidence they confessed that they belonged to something like a secret society, and they said 'I can go through all the valleys inhabited by Korannas and Griquas, and wherever I go when I open my coat and show these three cuts I am sure to be well received.'"[2] Mr. Johnston gives a sketch of a Mu-ngala from the equator whose body was entirely covered with cicatrisations, which he says are produced by raising lumps or wheals of skin by slitting it with a knife and rubbing some irritant into the incision," and he tells us that this mode of ornamentation is practised right along the course of the Congo up to the Stanley Falls. The marks thus made are tribal. " Thus," he says, " the Batéké are always distinguished by five or six striated lines across the cheek-bone, while the Bayansi scar their foreheads with a horizontal or vertical band."[3]

The Andamanese, who also practise tattooing by means of gashing, do so, according to Mr. Man, first by way of ornament, and secondly to prove the courage of the individual operated

[1] Mr. Griffith in his paper on Sierra Leone ("Journ. Anthrop. Inst.," February, 1887, page 309) says, " The girls are cut on their backs and loins in such a manner as to leave raised scars which project above the surface of the skin about one-eighth of an inch. They then receive Boondoo names, and after recovery from the painful operation are released from Boondoo with great ceremony and gesticulation by some who personate Boondoo devils with hideous masks, &c. The girls are then publicly pronounced marriageable." Mr. Phillips explained after his paper on November 8th, 1887, the mode in which these gashes are made: he said with a needle and a knife, the needle being inserted under the skin and gashes cut across it with the knife, sand being rubbed into the cuts to produce the raised appearance.

[2] "On the Central South African Tribes," " Anthrop. Journ.," August, 1881.

[3] " The River Congo," H. H. Johnston, page 420.

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upon, and his or her power of enduring pain. Women are the chief operators, and they now use a piece of glass to make the incisions, but formerly a flake of quartz. They commence tattooing children about their eighth year, and the process is not completed till they are sixteen or eighteen; but they never tattoo the face, neither do they rub any pigment or other preparation into the wounds. Although no particular ceremonies accompany the operation, the marks here as in Africa would appear to be tribal, for Mr. Man tells us of three tribes who may be specially distinguished by three rows of cuts down the back and chest, and "although women do the greater part of this work, the three lines down the back are almost exclusively made by some male friend with the *ōla* or pig-arrow; and except the three lines in front, the women of these tribes have no special marks, but are covered like the females of South Andaman with small raised cuts, which are inflicted by their own sex with the ordinary glass or quartz flake, and not with the pig-arrow."[1] In another tribe the central row of cuts down the back is omitted, and in another the whole body is covered with perpendicular and horizontal cuts.

In the Admiralty Islands, Mr. Moseley tells us that "the males are mostly marked with cicatrisations on the chest and shoulders," in the form of circular spots about the size of half-a-crown, which are often continued down the back in two lines meeting in the middle, and these marks appear to be assumed only at adult age, but "the women are all tattooed, with rings round the eyes and all over the face, and in diagonal lines over the upper part of the front of the body, the lines crossing each other so as to form a series of lozenge shaped spaces." This tattooing is done with *short cuts*, probably with obsidian flakes, and are all coloured indigo blue, but it is scarcely visible at a distance and does not form coloured patches as in the Fijian women and Samoan men.[2]

The Solomon Islanders also tattoo in this manner with short cuts.

In Timor Laut, Mr. Forbes tells us, "both sexes tattoo a few simple devices, circles, stars, and pointed crosses, on the breast, on the brow, on the cheek, and on the wrists; and scar themselves on the arms and shoulders with red-hot stones in imitation of immense small pox marks, in order to ward off that disease." But, he adds, "I have, however, seen no one variola-marked, nor can I learn of any epidemic of this disease among them."[3] It may therefore be interesting to compare these marks,

[1] "Anthrop. Journ.," February, 1883, page 334.
[2] H. N. Moseley "On Admiralty Islands," "Anthrop. Journ.," May, 1877.
[3] "Anthrop. Journ.," August, 1883, page 10.

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with those described above as in use in the Admiralty Islands, which they seem to resemble.

We turn now to the other species of tattooing, being that most commonly known by that name, in which a pattern is first drawn and afterwards pricked into the flesh, various colours, but chiefly indigo blue, being rubbed into the wounds, thus forming indelible marks. This mode of adornment is found very widely spread, but it reaches its culminating point in New Zealand, where it may be said to attain the position of a fine art, the tattooing for each part of the face being known by a separate term. The blue dye used by the Maories in tattooing is made from the soot obtained by burning the heart of certain trees.[1] The designs consist of curved lines, which frequently cover the entire face, even extending over the eyelids. The process is extremely painful, and can only be done by degrees, so that years are occupied in completing the operation, the instruments employed being of sharp human bone. Tattoo marks were looked upon as signs of dignity and denoted a warrior.[2]

The nearest approach to the New Zealand tattooing appears to be that practised among the Nagas of India, of whom Col. Woodthorpe writes, "they would be good looking as a rule, but for the tattooing which in some cases makes the faces almost black; in others the tattooing is blue, and then the bare portion of the face, especially in those of fair complexion, appears pink by contrast. The tattooing on the face is called 'Ak,' and consists of four continuous lines carried across the forehead, round and underneath the eyes up to the nose, back over the cheeks, and round the corners of the mouth to the chin; rows of spots follow the outside lines and two fine lines mark out the nose, in a large diamond space."[3] Some of the Naga tribes do not tattoo the face, but only the breast, shoulders, back, wrists, and thighs. The women are also tattooed more or less, but among the Angamis and other Eastern tribes, we find very elaborate designs, consisting of lines on the breast, from which proceed eight lines to the waist, gradually narrowing to a point; the thighs are covered with close vertical lines, with horizontal lines on the calves. This curious tattoo, which has the appearance of tight fitting breeches, extends to Borneo; and there is in the British Museum a painting from "Head Hunters of Borneo," repre-

[1] Mr. Kerry-Nicholls in "Anthrop. Journ.," November, 1885.

[2] It has been said, and probably with truth, that the tattooing of the bodies of chiefs and warriors was for purposes of identification, in case the head should be cut off by the enemy in battle, and this is particularly noticeable in New Zealand, where we are informed that every mark or line tattooed on the face of a chief is repeated on the body.

[3] Colonel R. G. Woodthorpe, R.E., "Anthrop. Journ.," February, 1882, p. 208.

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senting a Tring Priestess thus adorned. Of this curious ornament, Colonel Yule writes: "The practice of tattooing has been too generally diffused to build anything on its existence. But there is an application of it so peculiar and remarkable, that it is worth while to notice its coincident existence among races both of the continent and of the islands. This consists in covering the skin from the waist to the knee with dark embroidery; in fact tattooing *breeches* upon the body. In spite of a thousand years at least, perhaps much more, of Indian religion and influence, every male Burman is thus adorned. In Borneo among certain tribes, the women have precisely the same decoration."[1]

In New Guinea, the Motu women are very elaborately tattooed in geometrical patterns. Some of the men are also tattooed, but in this case it denotes, as in New Zealand and among the Nagas, that they are warriors, and have slain one or more enemies; and Mr. Lawes says, "It is no uncommon thing to hear men quarrelling, and one saying to the other, Who are you that you should talk? Where are your tattoo marks? Who have you killed, that you should speak to me?" In New Guinea, the tattooing is done by marking out the pattern in lamp black and then puncturing the skin by lightly tapping a thorn on it. Tattooing seems formerly to have been in almost general use among the Indians of North America, but is now almost confined to the Haidahs of Queen Charlotte Islands and Alaska: it exists also among the Eskimos, and Greeley reports meeting a boat filled with Eskimos from the west of Davis Strait, one of whom was tattooed. The tattooing of the Haidahs differs from that of most other races, the patterns consisting chiefly, if not wholly, of animal forms instead of geometrical patterns; these animal forms are the totems of the tribe, and are repeated on the pillars erected before the door of the chiefs, but they are conventionalised representations, bearing a strong family resemblance both to the carvings of ancient Mexico and Central America, and to those of New Zealand at the present day; a likeness which could not fail to strike those who compared them, as exhibited in the Colonial and Indian Exhibition: the chief difference was, that the Haidah totem posts were highly coloured, whilst those of New Zealand were of natural wood, polished. I referred to the peculiarities of these totem posts, in my paper on "American Shell Work and its Affinities," and need not therefore say more on the subject now, excepting to draw attention to these resemblances as bearing upon a peculiarity connected with the art of tattooing. In the very fine portraits of Maories exhibited in the New Zealand Court of the Colonial and Indian

[1] "Anthrop. Journ.," February, 1880, page 294.

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Exhibition, the peculiarities of New Zealand tattooing were well depicted, and it might have been observed, that whilst the faces of the chiefs were covered with ornamental designs, the women were tattooed only on the chin, and the faces of young girls were not tattooed at all.[1] The tattooing of the chin and lips of women, we were informed, took place only after marriage, and in fact like the wedding-ring among ourselves, denoted marriage. Now, this custom is not confined to New Zealand, but has a very wide range, and I quote a few instances from the article already alluded to on "Pictographs of the North American Indians" in the Annual Report of the Bureau of Ethnology for 1882–83. "Captain John Smith (1819), says of the Virginia Indians. 'They adorne themselves with copper beads and paintings. Their women have their legs, hands, breasts, and faces cunningly imbroidered with divers workes, as beasts, serpents, artificially wrought into their flesh with blacke spots.'" The Innuit, according to Cook, tattooed perpendicular lines upon the *chin of women*, and sometimes similar lines extending backwards from near the outer portions of the eyes. M. Gatschet reports that among the Klamath, the women have three lines, one from each corner of the mouth, and one down over the centre of the chin. The Modoc women tattoo three blue lines extending perpendicularly from the centre and corners of the lower lip to the chin. Stephen Powers says, that the Karol California squaws tattoo, in blue, three narrow fern leaves perpendicularly on the chin, one falling from each corner of the mouth and one in the middle. The same author says, "The squaws (Patáwat, California) tattoo in blue three narrow pinnate leaves perpendicularly on their chins," and the women of the Wintuns, another Californian tribe, tattoo three narrow lines, one falling from each corner of the mouth and one between. The "Report of the Pacific Railway Expedition," Vol. iii, says, "Blue marks tattooed upon a Mojave woman's chin denote that she is married." Bancroft says, of the Eskimo, that the females tattoo lines on their chins; the plebeian female of certain bands has one vertical line in the centre, and one parallel to it on either side. The higher classes mark two vertical lines

[1] The custom however appears to vary, for I am informed that in some parts of New Zealand no importance is attached to tattooing, which is done, as with ourselves, simply as a fancy, some young girls being tattooed round the eyes. From the fact, however, that there is a special name in Maori for the tattooing of every part of the body, it would seem to have been originally ceremonial in origin. The female tattooes are for the breast, the thighs, and the chin, the latter being the principal. See "Te Ika a Marie," by Rev. Richard Taylor, page 321, &c. Mr. Taylor believes tattooing to have originated in consequence of the chieftains being of a lighter race and having to fight side by side with their black slaves, so in order to make themselves appear of the same race they blackened their faces, and when wars became very frequent they made these marks indelible to save the trouble of constant blackening.

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from each corner of the mouth. The Kuskoquim women sew into their chin two parallel blue lines. On the Yukon River among the Kutchins the women tattoo the chin with a black pigment.[1] Nordenskiöld ("Voyage of the Vega") says, the Chukché women are tattooed on the face, especially the chin, the men are not tattooed, but have sometimes a black or red cross painted on the cheek. The true Chukchés are reported as living on the coast of America, north of Behring's Straits. They insert bones in the lips and in the sides of the mouth, and have articles of nephrite like that from High Asia.

Mr. Everard im Thurn speaks of the tribal tattoo mark at the corners of the mouths of the Indians of Guiana, but does not speak of these marks as confined to women: the women of that country, however, represented in the Colonial and Indian Exhibition, had distinctive marks on the lips and round the mouth extending across to the ear, but whether of paint or tattoo markings, could not be certainly known.

Turning now to the eastern hemisphere, we find among the Ainos of Japan, that the women tattoo their chins, as it is said to imitate the beards of the men, and among the fellahs of Egypt, and the labouring people of the cities, the women tattoo their chin, forehead, breast, hands, and feet. In Upper Egypt most women puncture their lips to give them a dark bluish tinge.[2] Among the Nagas of India we are told, "the women all tattoo slightly; fine lines are drawn on the chin, the outer ones being tattooed from the corners of the mouth."[3]

This tattooing of the chin appears also on the Motu woman of New Guinea depicted in the "Anthropological Journal" for May, 1878.

Drawing together the threads offered by the foregoing facts, we may, I think, assume, that tattooing by *cicatrisation* exists chiefly among the *black* races; that the marks are *tribal*, although in some cases they denote membership of a secret society, a sort of freemasonry, of great service to the possessor; that tattooing, as it exists in New Zealand and among the Pacific Islands, is chiefly ornamental, and in the men honourable, denoting bravery in battle; but the pattern employed has also a distinct reference to some event, as well as being tribal; whilst in the women, the tattoo mark on the chin almost always denotes marriage. So general does this custom of tattooing the chin in women seem, that it would appear possible by it to distinguish the sex not only in the living individual, but in

[1] "Native Races," Vol. i, pages 48 and 72.
[2] See Featherman's "Social History of the Races of Mankind," Vol. v, page 545; and "Science," III. No. 50, page 69.
[3] "Anthrop. Journ.," February, 1882.

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paintings and sculptures. The wide distribution of this peculiar custom appears to me of considerable significance, especially as it follows so nearly in the line I have indicated in two previous papers as suggestive of a pre-historic intercourse between the two hemispheres. "If," says Max Müller, "we find the same words with the same meanings in Sanskrit, Persian, Armenian, Greek, Latin, Celtic, Slavonic, and Teutonic, what shall we say? Either the words must have been borrowed from one language by the other, or they must have belonged to an older language from which all these so-called Aryan languages were derived." This, using customs instead of languages, is what I have endeavoured to show in this and other papers. When we find in India, Japan, Egypt, New Guinea, New Zealand, Alaska, Greenland, and America, the custom of tattooing carried out in precisely the same manner and for the same ends, and when in addition to this we find a similarity in other ornaments, in weapons, in games, in modes of burial, and many other customs, we think it may fairly be assumed that they all derived these customs from a common source, or that at some unknown period, some intercourse existed of which these things are the surviving traces.

The antiquity of the art of tattooing is undoubted. Herodotus speaks of it as used by the Thracians, and I have always held that the Picts were probably tattooed, and perhaps the ancient Britons likewise, and that geometrical patterns and other markings similar to those still in use in New Zealand and North America found on ancient stone monuments in Europe, probably denoted the tribal mark or totem of chieftains, as tattooed or painted upon their persons, but this of course, except from analogy, must remain a conjecture. Doubtless as at the present day, tattooing died out rapidly after contact with civilised races; but it is somewhat singular, that no trace of tattooing as far as I am aware is to be found among the Egyptian, Assyrian, Greek, and Roman paintings and sculptures, although these civilised nations must have come in contact with tattooed peoples, unless it had not at that period spread into the regions depicted by them. The bronze head before alluded to as found in the cemetery of Marzabotto, Bologna, is the only one I know in which tattoo marks, or rather the *African tribal cicatrices* on the face, are distinctly to be seen. Mr. Swan, who in his article on the Haidahs, reproduces this bronze head, fancies he sees something like tattoo marks on one of the vases found by Dr. Schliemann; and I believe it can be plainly traced on some of the Peruvian vases. I pointed out in a note to my paper on American Shell Work, the strong similarity between the tattoo marks of the Nagas as pourtrayed by Dr. Watt in the Colonial and Indian

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Exhibition, and those on the curious shell masks found in grave mounds in America; and a still more remarkable coincidence in connection with the subject of this paper has since come to my notice. The shell masks of which I have spoken, have diagonal lines across the cheek, and some have a hole with a line or two lines proceeding from it and sometimes two others crossing it extending over what may be supposed to be the chin. Now it is a singular fact that exactly the same mark appears on the chin of the gigantic stone image from Easter Island now under the portico of the British Museum. Whether these marks represent tattooing as affirmed by Mr. Dall, and whether then, as now, these markings on the chin denoted a female, must be left to further investigation, but it is a subject worthy I believe of the especial notice of travellers and antiquaries, for it appears to me of great anthropological interest. The implements employed are also deserving of notice, being in many places fragments of human bone, but of these I cannot treat in the present paper.

Since writing the above, I have been favoured with a sight of a book recently published by Herr Joëst, on the subject, and if the plates given of Japanese tattooing are not supplemented by painting, it must be conceded that the Japanese are the most skilful tattooers in the world. The patterns resemble those on Japanese silks, and might readily be mistaken for a tight fitting garment of that material. Such, indeed, seems to be the design, as it is only in use, we are told, among the lower orders, and takes with them the place of garments.

Explanation of Plate VI.

Map of the world, illustrating the distribution of tattooing. In this map the dark shading by *horizontal* lines represents the distribution of tattooing by means of gashes; the medium shading by *vertical* lines, the ordinary tattooing by puncture, with colouring matter rubbed in; the light *dotted* areas represent countries where traces of ancient tattooing are mentioned in the paper; and the three strong lines from *left to right* denote those places in which travellers have noticed the tattooing of the chins of women, chiefly in token of marriage. The scale of the map is too small to mark each place distinctly, especially the one spot in Italy alluded to in the paper.

Discussion.

Lieut.-Col. Kincaird remarked that Miss Buckland in her valuable paper had referred to the practice of tattooing among the tribes of Nagas in North-Eastern India, but it might be of interest

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to remark that the speaker's observation led him to believe that this custom, though in a partial manner, on the arms and legs is wide spread among the women of the lower castes of the Tamil, &c., races in the south and south-east of the peninsula. Among the ethnically allied so-called aboriginal tribes inhabiting the Vindyan and Suthpura Hill slopes it is also prevalent, even among the women of the lower order of Mohammedans, whose forefathers were probably low caste Hindoos before being converted by force. The speaker had observed the same tattoo markings on arms and legs. There is very generally a dot on the chin and similar dots on the cheek or temple very sparingly placed, forming perhaps in their ideas beauty spots, similar to the patches of our ladies in former years.

With reference to possibly early intercommunication of tribes referred to in the paper, there is the curious fact of the Dyak tribes of North-Eastern Borneo using similar weapons to those in use by certain tribes of the head waters of the Amazon; now the blow pipe alluded to is a very skilfully constructed weapon, as proved by some in the speaker's possession. The blow pipe is made of the hardest wood of the forest, eight to ten feet long, bored most accurately with close fitting poisoned arrows. It is curious that tribes so dissimilar in manners, customs, and appearance should have hit upon identically constructed weapons so different to the usual axes, bows and arrows, and spears of most savages.

The following paper was then read :—

On the EVOLUTION *of a* CHARACTERISTIC PATTERN *on the* SHAFTS *of* ARROWS *from the* SOLOMON ISLANDS.

By HENRY BALFOUR, M.A., F.Z.S., Assistant to the Curator of the Pitt Rivers Museum at Oxford.

[WITH PLATE VII.]

HAVING recently had the opportunity of observing a large number of arrows from the Santa Cruz and Solomon Island groups, forming a section of the fine arrow series recently arranged in the Pitt Rivers Museum at Oxford, I was struck by the persistence of a certain incised pattern on the shafts of the greater number. The constant recurrence of this design, which, though showing many modifications in complexity and finish, is essentially the same throughout the series, suggested that it must originally have had some definite significance. Either it might have originated in some natural peculiarity or imperfection, the outline and position of which suggested a rough ornamentation; or in some artificial modification of the shaft

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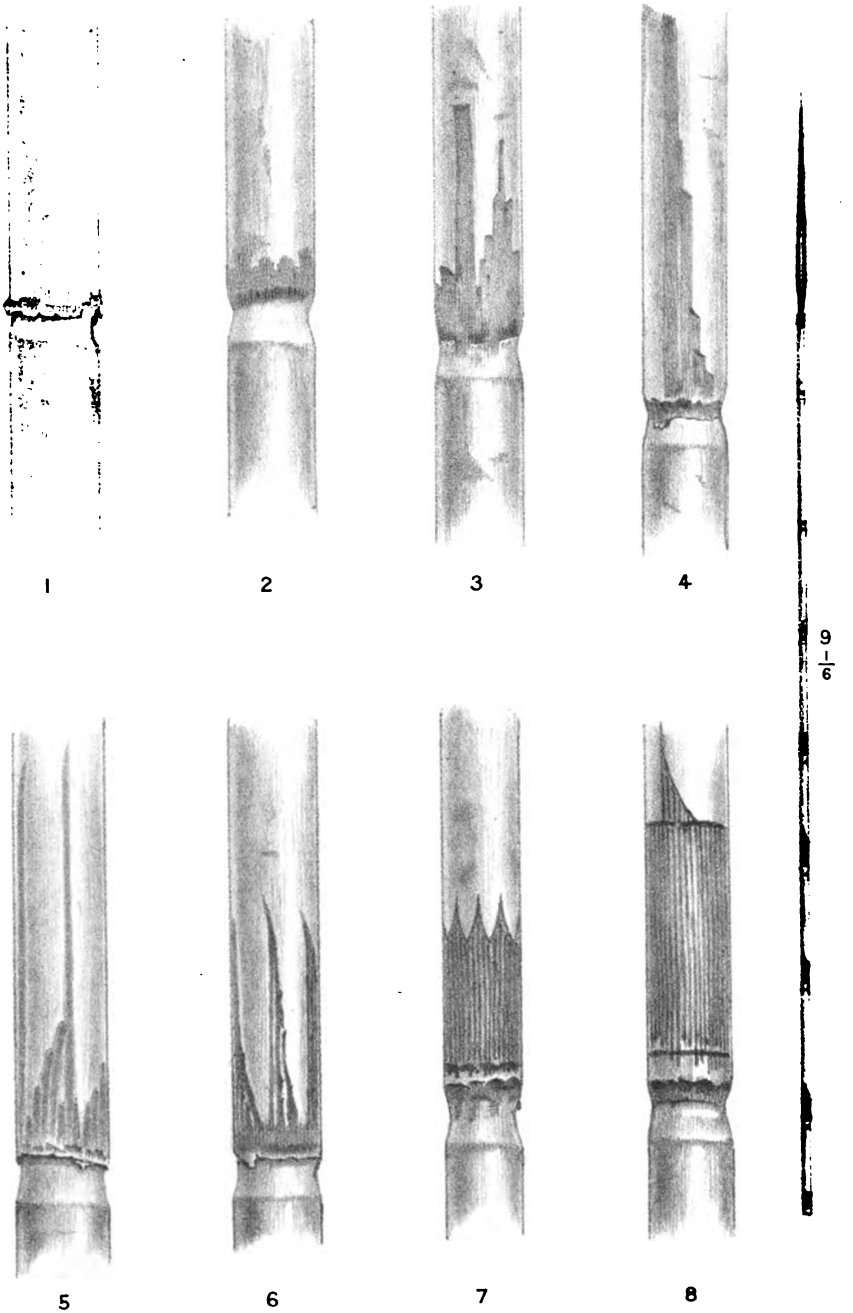

H. Balfour Del.

ORNAMENTED REED ARROW-SHAFTS.

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which served a useful purpose; or lastly, it might have been developed from some previous design which represented some real object. In a lecture[1] delivered before the Royal Institution of Great Britain, Colonel Lane-Fox described a series of paddles which showed the stages of gradual degeneration in successive copyings of a design representing the human form, and how, by the loss of its attributes, it became reduced at length to a simple crescent, a purely conventional pattern.

In the series of arrows which I have selected for the purpose, I have been able to trace what I believe to be the stages of evolution of the pattern which occurs so characteristically upon them; not from some pre-existing design, but from a useful modification of the shaft, necessary for the perfection of the arrow itself.

The position of the design is invariably immediately above the joints of the reed of which the shaft is made; it usually consists in the fully developed pattern of a number of incised straight lines, blackened, and running parallel to the length of the shaft so as to form a band round it. The length of the parallel lines is limited by tranverse lines round the shaft. These are the characteristics of the design, but many modifications occur, varying in their complexity according to the artistic taste of the designer.

In the series of arrows which I have figured, the first (Plate VII, Fig. 1) is one in which the joints are untouched, except to remove the leaves, and they remain rough and jagged. This must have proved an inconvenience in shooting, as the arrow in passing over the hand on which it rested, would have rasped it, even if the roughness did not interfere with the accuracy of flight.

An obvious improvement was to pare down these rough edges, and leave the whole surface smooth. Fig. 2 shows a joint of a Santa Cruz arrow trimmed in this way. The fibrous substance of the stem appears as the silicious exterior is removed in the process. Now, from the fibrous nature of the substance of the reed, there would be a tendency for narrow strips to peel away along the length of the shaft when started by an incision, in the attempt to remove small shavings. To prevent this peeling extending far, cross notches were cut as represented in Fig. 3, Plate VII, the peeled lines varying in length.

By careful manipulation the length of the lines was controlled, and varied at the will of the native, and two clusters of lines were arranged symmetrically, one on each side of the shaft, each

[1] "On the Evolution of Culture," by Col. A. Lane-Fox. "Proc. Royal Institution," May 28th, 1875, Vol. vii, page 516.

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group being composed of from five to eight lines of graduated length. Here, then, the condition of *ornament* has been reached, and this state is further marked in this specimen (Fig. 4, Plate VII) by the fact of the lines having ceased to be in connection with the actual joint, and commencing a trifle above it. The paring down of the joint is here performed by a distinct process, extra care being taken not to encroach upon the pattern by peeling as before.

At this stage, moreover, we find that the design is artificially picked out in black colour. The rough fibrous layer exposed in peeling, would tend, in the continual use of the arrow, to become soiled and darkened, while the silicious outer coating would have remained clean and light coloured, because of its smoothness, the lines would thus have been thrown up conspicuously, suggesting the idea of artificially blackening them to emphasise the pattern.

In Fig. 5, Plate VII, the number of the groups of lines is seen to be increased, five of them being arranged round the stem. Each group consists of one very long line and a few shorter at its base. Here, again, we find evidence of the pattern having lost utterly its original significance, for the joints in this specimen are left rough and jagged as in Fig. 1. Possibly this may be an unfinished arrow, and would have been trimmed as in Fig. 4, but, nevertheless, it exemplifies the want of connection at this stage between the design and the act of trimming the joint, from which it was evolved. In Fig, 6, Plate VII, there are six groups of lines disposed round the shaft, shorter than the last and more compact in arrangement; the lines, too, are fine and incised, and not the result of scraping or peeling. By the coalescence of the bases of these groups an arrangement is arrived at, as in Fig. 7. The design here forms a complete band round the shaft, the points alone of the groups remaining free. In Fig. 8, the whole is seen to be filled in, the close parallel lines are bounded by circular transverse lines and no trace of the grouping remains. In this specimen too it is interesting to note that, above the band and resting on it, the old design has been reintroduced at a stage represented in Fig. 6, the upper circular line of the band representing the line of the joint from which the first design sprang. Fig. 9 represents the full length of the arrow of which a portion is figured in Fig. 8, and shows the distribution of the design on the shaft. Four of the articulations are ornamented with it, while a fifth has a very slight design, which may possibly be either a degenerate form of the ordinary pattern, or one that has been evolved from the same source, but through a different series of stages of development.

There are a great many varieties of the pattern of which the

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development has been traced, but all are modifications of the same type, and vary but in detail and workmanship.

In the series which I have selected and figured, the more marked phases are alone given, but in a larger series an almost continuous series of gradations can be shown.

The use of a reed or bamboo shaft for arrows and spears is very widely distributed, and in all cases there arises the necessity for paring down the rough joints to admit of the perfection of the weapon. Assuming that under like circumstances like ideas are evolved, one would naturally be led to expect to find that somewhat similar ornamental designs would be developed in most of the localities in which these artificially smoothed reed shafts occur.

Although in most of these regions some trace of ornamental adaptation of this paring of the joint obtains, in none have I found the design, developed in this way, so highly modified into a purely conventional pattern as in the Solomon Island series.

In New Guinea the reed shafts of the arrows are mostly trimmed at their joints, and the peeling is frequently very uniform, the lines being of equal length. Generally, the pattern thus formed is blackened, or, more rarely, coloured red, and extends for an inch or more in length. There appears to be but little variety, and the ornament does not seem ever to assume a highly specialised form as in the Solomon Islands.

Some of the Australian fish-spears which I have been able to observe have their joints roughly trimmed, and the lines, some of which are short and others long, picked out in red colour, showing an appreciation of their adaptability to ornamental purposes. In some cases many of the lines extend from one joint to the next. I have noticed, too, that the joints of the shafts of some stone-pointed spears from Port Darwin, have white colour rubbed round them, both above and below the joint; but in this case the colour does not appear to have any definite relation to the peeled lines, and it appears rather to be intended to emphasise the joint or node itself. Here then it is a *natural* peculiarity which has given rise to ornamentation.

Some African javelins with shafts, apparently of some kind of *Calamus*, have the knots scraped smooth both above and below, and blackened by burning, a neat band-like ornamentation being formed. This form of ornament does not appear to be very common. The bamboo shafts of spears from New Hanover are sometimes scraped on *both* sides of the nodes, and a white colour is rubbed over the scraped surface.

Most of the Asiatic reed-shafted arrows have their joints very neatly trimmed, but I have not noticed the development

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of any definite pattern from this, unless the decorative bands, which sometimes cover over the nodes in North Indian arrows, have been suggested by the trimming of the joints. In one South American arrow I observed lines running between the joints, blackened, which appeared to take rise from the peeling of the nodes. This is the only instance that has come under my notice, and the use of a hollow reed shaft is comparatively rare, and, when it does occur, the joints are often left rough and untrimmed.

Explanation of Plate VII.

A series of reed shafts of arrows from the Solomon Islands. The figures are numbered in the order of the stages of development of the pattern.

On the OCCURRENCE *of* STONE MORTARS *in the* ANCIENT (PLIOCENE ?) RIVER GRAVELS *of* BUTTE COUNTY, CALIFORNIA.

By SYDNEY B. J. SKERTCHLY, F.G.S., M.A.I.

[WITH PLATE VIII.]

DURING a visit to the Spring Valley Gold Mine at Cherokee, Butte Co., California, my friend Mr. Louis Glass, the Superintendent of the mines, directed my attention to the discovery of stone mortars in the undisturbed gravel of the old river system of California. As this bears upon the question of the antiquity of man in North America the following notes may be interesting. I may add that being away from books references are unobtainable, but I believe Mr. Bowman has examined some of the finds and is satisfied that the mortars occur *in situ*. I am bringing one home with me.[1]

1. *Geological Position.*

The Spring Valley Mines are situated on the Foot Hills of the Sierra Nevada, in one of the valleys of the Sacramento River system, which are here excavated to a depth of over 2,000 feet.

The following is a section in the deepest part of the channel:

Spring Valley Gold Mine.

1. Basalt cap	25 to 100 feet.
2. White quartz sands with lenticular masses of pipe-clay	450 „

[1] This specimen was exhibited at the meeting.

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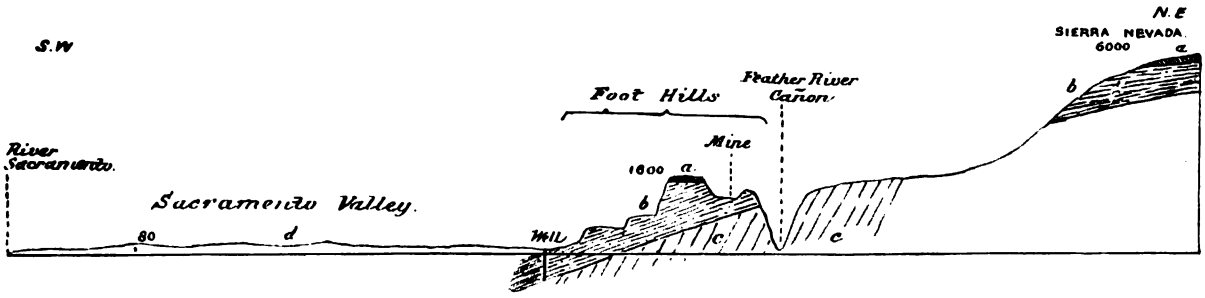

SKETCH-SECTION FROM THE SACRAMENTO RIVER TO THE SIERRA NEVADA THROUGH SPRING VALLEY GOLD MINE.

Scales.—Horizontal 1 inch = 10 miles.
Vertical 1 inch = 6,000 feet.

Figures = Approximate height in feet above sea level.
d = Alluvium of Sacramento River.
a = Basalt Cap.
b = Gold-bearing Gravels (Old River Channel).
c = Bed Rock. Metamorphosed Cretaceous Slates.

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3. Blue gravel, full of decomposed metamorphic or eruptive rock boulders	2 to 15 feet.
4. Blue gravel with large undecomposed boulders, much cemented ..	50 „
5. Bed rock, metamorphosed cretaceous slates.	—

The mortars, of which about 300 have been found since the year 1849, occur in the white sand or gravel No. 2, and one, examined by Mr. Bowman, is said to have occurred in No. 3.

The general relation of the beds is shown in the section in Plate VIII.

The beds 2 to 4 constitute part of one of the old rivers which drained the country prior to the establishment of the present river system. This particular "Cherokee River" cuts across the valley of the Feather River, as shown in the section, and has been proved beneath the Sacramento River at the place marked "well."

The gravel is for the most part well water-worn, even the large boulders, some of which weigh eight tons, being rounded, with the exception of those in bed 4, which are only sub-angular.

I could detect no trace of ice action, and the whole deposit bears evidence of its fluviatile origin. The pebbles and boulders are "shingled," or lie pointing down stream.

At the top of bed No. 3 impressions of leaves are sometimes obtained in a sandy loam very full of black vegetable matter. These have been examined by Prof. L. F. Ward and very doubtfully referred to *Cinnamomum* or *Paliurus*, but he remarks, "The specimen may possibly represent a *Populus* unlike any modern form."[1]

The blue (and more highly auriferous) gravels are sharply distinguished from the overlying white beds, there being often a "pan" of cemented gravel between the two, the cement being red iron oxide. The general opinion is that these blue gravels are of distinct age, and much older than the white. This seems borne out by the characters of the two deposits. The blue gravels contain many very large boulders of metamorphic and eruptive rocks with much black sand (ilmenite), while the white gravels are entirely free from boulders and contain but little black sand.

2. *Age of the Gravels.*

Prof. Whitney considers the white gravels to be of Upper Pliocene age,[2] and that with the blue gravels these auriferous

[1] Diller, "Notes on the Geology of Northern California," "Bull. U.S. Geol. Surv.," 1866, page 16.

[2] "Geol. Surv. Cal.," vol. i, page 211.

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deposits may represent the whole of the Tertiary.[1] Dr C. A. White, quoted by Mr. Diller, suspects the whole to be of Upper Pliocene age; and Mr. Diller remarks that "all that can be definitely stated at present concerning the strata containing the leaf impressions is that they are more recent than strata known to belong to the Chico group, and that their flora, as far as Prof. Ward can judge from the few imperfect specimens at hand, has a pre-Pliocene aspect."[2]

These conclusions are based upon the determination of the age of the lava flow which overlies the gravels, and from the age of the faults in the neighbouring Sierras. The lava flows are derived from the vicinity of Lassen's Peak (60 miles north of Cherokee) and are certainly not older than the close of the Pliocene; and as these lavas are faulted the dislocations are probably post-Tertiary. Part of the upheaval of this portion of the Sierras is thus of very recent geological date, and it is quite possible that the ancient river beds may have partaken somewhat in these movements, for I find from observations on the transporting power of the sluices at Cherokee that the present grade of the old channel (about 6 per cent.) could be much reduced and still afford sufficient transporting power to move the larger boulders in the blue gravels.

Whatever be the absolute age of these gravels from a geological standpoint, their immense antiquity historically is beyond question. The present great river system of the Sacramento, Joaquin, and other rivers has been established; cañons 2,000 feet deep have been carved through lava, gravels, and into the bed rock; and the gravels, once the bed of a large river,[3] now cap hills 6,000 feet high. There is ample ground for the belief that these gravels are of Pliocene age, but the presence of objects of human fabrication invests the gravels with a higher interest to the anthropologist than even to the geologist, and may suggest new views.

3. *Occurrence of the Mortars.*

The working face of the mine is an artificial cliff of from 400 to 600 feet in height, the whole of which is fetched down by the water jets of hydraulic giants. The material is washed into the sluices and the mortars are found with the rest of the mass. They are thus not quarried out by hand, but fairly washed out from the gravel. They cannot have come from the surface, for none are ever found there, and many of them have

[1] "Auriferous Gravels," page 283. [2] *Op. cit.*, page 16.
[3] The channel of the white gravels at Cherokee is 1,500 feet.

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been seen by Mr. Glass with the original gravel adhering to them. They are readily noticeable as being the only large stones in the white gravel. I may add that the top soil overlying the lava cap is very thin and certainly does not contain these mortars.

Occasionally mortars are found on the surface in the neighbouring gulches, but only where the gulch has intersected the gravels, and these mortars are clearly derived from the old white gravels.

4. *Description of the Mortar.*

The mortar I obtained is composed of some eruptive or metamorphoric rock, which has become so decomposed as not to be easily determinable. Its outside measurements are 9½ inches by 7¼ inches by 6¼ inches, but some specimens are rather larger, others somewhat smaller. The hollow measures 6 inches by 5 inches and is about 5 inches deep. It still retains traces of having been used for grinding. The external shape is irregularly oval and shows distinct traces of chipping. The rock has disintegrated to a light brown colour like many acid rocks, and this and the very rolled character of the utensil gives the appearance of great antiquity.

5. *The Digger Indians.*

This country was inhabited by the Digger Indians until about the year 1865. My friend, Mr. Glass, was well acquainted with them, and assures me that they did not use such mortars: they hollowed out rocks *in situ*, and therein pounded the acorns on which they so largely subsisted. They were acquainted with these mortars, but knew nothing about the makers of them, and held them in such superstitious dread that on no account could they be induced to touch one. This dread of the relics of past ages seems to be everywhere common and is of itself proof of antiquity.

6. *Age of the Gravels.*

If these mortars had not been found in the gravels American geologists would never have doubted their Tertiary age, but when relics of man are demonstrated to exist therein, even in the older blue gravels, one may well hesitate to ascribe to them so great an antiquity.

Even before visiting California I had suspected these old river gravels might be contemporaneous with the glacial epoch, and I still think this possible. This area was not glaciated and these old gravels, hundreds of feet in thickness, may very well represent that great interval of time occupied in other regions by the glacial periods.

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This would bring the mortars to approximately the same age as the palæolithic implements discovered by me in East Anglia. It must be admitted that this is only a surmise, but if it be rejected there remains no alternative but to ascribe these relics to Tertiary times.

7. *Conclusions.*

1. These mortars are undoubtedly artificial.
2. They come from the old valley gravels.
3. These gravels are universally believed to be at least as old as Pliocene times.
4. I would suggest they may be of glacial age.
5. The immense antiquity of the gravels is shown—

   (*a.*) By the present river systems being of subsequent date, sometimes cutting through them and the superincumbent lava-cap to a depth of 2,000 feet.
   (*b.*) By the great denudation that has taken place since they were deposited, for they sometimes lie on the summits of mountains 6,000 feet high.
   (*c.*) By the fact that the Sierra Nevada has been partly elevated since their formation.

Explanation of Plate VIII.

Sketch section from the the Sacramento River to the Sierra Nevada, through Spring Valley Gold Mine, showing the geological position in which the stone mortars are found.

Discussion.

Mr. Rudler remarked that in approaching the discussion of this subject it was necessary in the first place to decide whether the object in question which had been described as a mortar, was, or was not, of human workmanship. If proved of human workmanship, it then became needful to enquire whether it really came from the gravel to which it had been referred. And finally, if satisfied on this point, it remained to determine whether the gravel was of the high antiquity which had been suggested.

As to the first question, he believed, after some familiarity with the natural forms assumed by concretions and nodules, that the object which he exhibited to the meeting on behalf of Mr. Skertchly had certainly been fashioned by the hand of man. Although rough, it bore, in the speaker's opinion, indubitable traces of having been artificially wrought. The material seemed to be a trachytic rock, and this had not only been hollowed out with some regard to symmetry but showed on the outside evident marks of chipping.

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According to the testimony of Mr. Amos Bowman, formerly attached to the Geological Survey of California, one of these objects was found in an upright position with a pestle in it—an association which would place the original purpose of the hollowed stone beyond all dispute. It may seem strange that mortars are almost the only human relics found in this locality, but they have probably survived by reason of their strength and solidity, while smaller and more fragile articles had perished.

As the mortars are generally found in the gravel after it has been washed down in the course of hydraulic mining, there seems room for some doubt as to the position which they originally occupied.

But Prof. Whitney has cited the evidence of several observers, who testify that they have taken these objects out of undisturbed gravels. There appears no reason to suppose that the mortars had been buried by the Digger Indians, or that they had been accidently washed into the auriferous gravels from superficial deposits: indeed it is believed by eminent authorities who are familiar with the locality that such explanations are indefensible, and that the original position of the mortars in the gravels is beyond all possibility of cavil.

Finally, there remains the question of the age of the gravels. The section in Plate VIII, at once suggests a very high antiquity for these deposits, inasmuch as they are evidently anterior not only to the volcanic activity represented by the outflow of basaltic lava, but also—and this is more important—to the subsequent erosion of the valley by river-action to a depth of several hundred feet. The evidence thus afforded by the physical features of the district is supported and strengthened by the fact that the gold-bearing gravels contain bones of the mastodon and other extinct mammalia. Whether the geological antiquity of these deposits be as high as has been assumed by certain American writers may be a question still open to discussion; and Mr. Skertchly's suggestion that they should be regarded as Glacial rather than as Pliocene will certainly commend itself to those anthropologists who are disposed to exercise a wholesome spirit of caution in dealing with the geological antiquity of man.

Mr. T. V. Holmes thought that if Mr. Skertchly had not been misinformed on any points, and the facts were as described, they had in this case more decisive evidence of the great antiquity of man than he had ever met with before. The section showed what immense changes had taken place in the physical geography of the district since the mortars became imbedded in these ancient river deposits, and these deposits had been covered by the basaltic cap, now largely denuded away. As to the mortars themselves, a single one might possibly be explained away as showing but an accidental likeness to a work of art, but that objection must fall to the ground, if, as stated, about 300 mortars had been found in the same beds.

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ANNUAL GENERAL MEETING.

JANUARY 24TH, 1888.

Prof. FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last Anniversary Meeting were read and signed.

The CHAIRMAN declared the ballot open and appointed Mr. T. V. HOLMES and Dr. SUMMERHAYES Scrutineers.

Mr. A. L. LEWIS, the TREASURER, read the following report for the year 1887:—

TREASURER'S REPORT FOR 1887.

The total receipts for the year 1887 have been 646*l.* 3*s.* 1*d.* being 11*l.* 15*s.* 9*d.* less than in 1886, but this amount will probably be more than made up by the value of the subscriptions which have yet to be received, as compared with the value of those outstanding last year. I say the value, because the nominal amount of arrears carried forward is about the same, but some which were brought forward last year and have been proved to be valueless have been struck off during the year, so that those now carried forward are, it is hoped, more valuable, and some have in fact been paid during the present month. The result of an examination of the composition of the receipts is not quite so satisfactory; the subscriptions actually received being 519*l.* 15*s.*, as against 543*l.* 17*s.* in 1886, although four life compositions were received in 1887 as against one in 1886, the nett diminution in annual subscriptions being 63*l.*; some of this apparent difference may, however, be found to be made up hereafter, when all the arrears are settled; it being a disadvantage of a statement of receipts and payments that the transactions belonging to different years get mixed together. The amounts received for interest and sale of publications are a few shillings in excess of those received in 1886, and we have in 1887 an item in our statement, which was not in that of the previous year, in the shape of donations, the President having kindly presented us with the gross amount received for his recent lectures at the South Kensington Museum.

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I may mention that three out of the four life compositions received were from old annual members who had previously paid a considerable amount in annual subscriptions.

The payments for the year 1887 have been 634*l.* 14*s.* 9*d.*, being 80*l.* 2*s.* 10*d.* less than in 1886. The items in which an apparent increase occurs are salary and commission, and house expenses, on account of their having been paid up closer to date; while there is a decrease in office expenses, stamps, miscellaneous printing, and in cost of the Journal (principally in the illustrations).

The diminution of expense in this matter has not, however, been due to any false economy on the part of those responsible for the Journal, but to the fact that the papers published have not required many illustrations.

There were 11*l.* 8*s.* 4*d.* more in hand at the end of 1887 than at the beginning of that year.

A. L. Lewis,
Treasurer.

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ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Receipts and Payments for the Year ending 31st December, 1887.

RECEIPTS.

	£ s. d.	£ s. d.
Balances, January 1st, 1887:		
At Bank	114 12 4	
In Office	5 6 10	
		119 19 2
Subscriptions:		
For year 1887	389 11 0	
,, covering 1888	8 8 0	
Four ditto Life Compositions	84 0 0	
Arrears	37 16 0	
		519 15 0
Sale of Publications:		
Messrs. Trübner & Co.	75 5 8	
Messrs. Longmans & Co.	1 16 4	
Office	7 7 9	
		84 9 9
Dividends:		
Four quarters on £900 3½ per cent. Metropolitan Board of Works Stock		30 10 4

PAYMENTS.

	£ s. d.	£ s. d.
Rent, one year to September, 1887		165 0 0
Printing:		
Journal, Nos. 56, 57, 58, 59, including illustrations	188 1 11	
Miscellaneous	14 16 9	
		202 18 8
Salaries and Collector's Commission		172 2 7
Stamps	81 3 2	
Parcels	4 2 9	
		85 5 11
Advertising		5 12 1
Office Expenses:		
Stationery	7 0 10	
Insurance	1 0 0	
Miscellaneous	2 2 8	
		10 3 6
Limelight (for Prof. V. Horsley's paper)		2 5 6
House:		
Cleaning rooms	16 16 6	
Attendance and Refreshments at Meetings	24 10 0	
		41 6 6

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Donations:				**Balances 31st December, 1887:**		
Anon	1 0 0			At Bank	116 18 10	
Proceeds of Lectures at South Kensington, on Heredity and Nurture, by the President; presented by him	10 8 0			In hands of Treasurer*	10 8 0	
		11 8 0		,, Secretary (Petty Cash)	4 0 8	
						131 7 6
		£766 2 8				£766 2 8

A. L. LEWIS, *Treasurer.*

Examined and found correct,

(Signed) EDWARD W. BRABROOK, J. E. KILLICK, } *Auditors.*

20th January, 1888.

* Received too late to pay into Bank on 31st December.

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Mr. F. W. RUDLER, the Secretary, then read the following Report:—

REPORT OF THE COUNCIL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND FOR THE YEAR 1887.

During the past year the Institute has held thirteen ordinary meetings, in addition to the Annual General Meeting.

The following list gives the titles of the papers and other communications which have been brought before the Institute during the year:—

1. "Notes on the Tribes of the Nile Valley North of Khartum." By Lieutenant-Colonel Sir Charles Wilson, R.E., K.C.B.
2. "The Functional Topography of the Brain." By Professor Ferrier, F.R.S.
3. "Description of the Cerebral Hemispheres of an Adult Australian Male." By H. D. Rolleston, Esq., B.A.
4. "On a Fossil Human Skull from Lagoa Santa, Brazil." By Sören Hansen, Esq.
5. "Stone Circles near Aberdeen." By A. L. Lewis, Esq., F.C.A.
6. "Palæolithic Implements from the Drift Gravels of the Singrauli Basin, South Mirzapore." By J. Cockburn, Esq.
7. "Stone Implements from Perak." By Abraham Hale, Esq.
8. "On the Migrations of the Eskimo." By Dr. H. Rink.
9. "Notes on the Inhabitants of the Polynesian Islands." By Coutts Trotter, Esq.
10. "Exhibition of Aborigines from North Queensland." By Mr. R. A. Cunningham.
11. "On the Ethnological bearings of the Stone Spinning-top of New Guinea." By Mr. C. H. Read, F.S.A.
12. "Extracts from Notes on Natives of the Solomon Islands." Communicated by Lieutenant F. Elton, R.N.
13. "On the Operation of Trephining during the Neolithic Period in Europe; and on the probable method and object of its performance." By Professor Victor Horsley, F.R.S.
14. "Comparison between the Recuperative Bodily Power of Man in Rude and in Highly Civilised Life." By George Harley, Esq., M.D., F.R.S.
15. "On the Evidence for Mr. McLennan's Theory of the Primitive Human Horde." By G. L. Gomme, Esq.
16. "On the Dieyerie Tribe of South Australia." By Samuel Gason, Esq. Communicated, with Notes, by J. G. Frazer, Esq., M.A.
17. "Exhibition of 'Hag-stones' from Kincardineshire, with Notes." By the Right Hon. the Earl of Ducie.
18. "Exhibition of Guancho Skulls, with Notes." By Henry Wallach, Esq.
19. "Hittite Ethnology." By Captain C. R. Conder, R.E.
20. "On an Ancient British Settlement excavated near Rushmore, Salisbury." By Lieutenant-General Pitt-Rivers, F.R.S.
21. "On the Stature of the Older Races of England, as estimated from the Long Bones." By John Beddoe, Esq., M.D., F.R.S.
22. Exhibition of Implements and Works of Art from the Lower Congo. By Major-General Sir Frederic Goldsmid, K.C.S.I., and by Delmar Morgan, Esq.
23. "The Lower Congo; a Sociological Study." By R. C. Phillips, Esq.
24. "The Primitive Seat of the Aryans." By the Rev. Canon Isaac Taylor, LL.D., Litt.D.
25. "The Maori and the Moa." By Edward Tregear, Esq.
26. "The Shell Money of New Britain." By the Rev. Benjamin Danks.

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27. "On the Evolution of a Characteristic Pattern on the Shafts of Arrows from the Solomon Islands." By Henry Balfour, Esq., M.A.
28. "Tattooing." By Miss A. W. Buckland.
29. "On the occurrence of Stone Mortars in the Ancient (Pliocene?) River Gravels of Butte County, California." By Sydney B. J. Skertchly, Esq., F.G.S.

In addition to the work represented by this list of papers a course of three lectures on "Heredity and Nurture" has been delivered by the President in the theatre of the South Kensington Museum. These lectures were attended by large and appreciative audiences, and at the close of each lecture the use of the simpler kinds of anthropometric instruments was explained and illustrated.

The Institute is indebted to the Lords of Committee of Council on Education for granting the free use of the theatre for this purpose.

The four numbers of the *Journal*, published with punctuality during the year, viz., Nos. 58, 59, 60, and 61, contain 386 pages of letterpress with 10 plates of illustrations.

During the past year 9 new members have been elected, while the Institute has lost, through death, 11 ordinary members, 3 honorary members and 1 corresponding member.

Thirty-seven members have either retired or been removed from the list in consequence of their subscriptions having been long in arrear, the Council having thought it desirable to subject the list to a searching revision, and to remove the names of those whose subscriptions had been long unpaid. Three old annually subscribing members have compounded during the year.

The former and present state of the Institute, with regard to the number of members, are shown in the following table:—

	Honorary.	Corresponding.	Compounders.	Ordinary.	Total.
January 1st, 1887	47	77	87	282	493
Since elected ..	..	..	+4	+8	+12
Since deceased ..	−3	−1	..	−11	−15
Since retired or struck off ..	..	−1	..	−40	−41
January 1st, 1888	44	75	91	239	449

The Council regrets to report the decease of the following Members:—*Honorary Members*—Prof. A. Ecker, Prof. A. F. Pott, Dr. C. Rau; *Corresponding Member*—Sir Julius von

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Haast; *Ordinary Members*—Lady Brassey, Mr. H. Crowley, Mr. J. O. Griffits, Sir W. Vernon Guise, Bart., Mr. G. Hawkins, Mr. J. E. Lee, Mr. Hugh Brooke Low, Mr. Karl F. Nordmann, Mr. F. E. Robinson, Mrs. Erminie E. Smith, and Mr. Hodder M. Westropp.

The Council has to report that it has undertaken, at the request of the British Association Committee, the preparation of a new edition of the volume of "Anthropological Notes and Queries," in consequence of the receipt of the following letter from the Secretary of the Association Committee, which was submitted to the Council at their meeting on October 25th:—

DEAR SIR,

The Committee of the British Association, consisting of General Pitt-Rivers, Dr. Beddoe, Prof. Flower, Mr. Francis Galton, Dr. E. B. Tylor, and Dr. Garson, appointed for the purpose of re-editing a new edition of "Anthropological Notes and Queries," with authority to distribute gratuitously the unsold copies of the present edition, having been re-appointed, desire to give effect to the following proposal in their report of the past year to the British Association:—

> "The Committee, after carefully considering the question of how the preparation of the new edition can be most efficiently done, strongly recommend that the work be entrusted to the Anthropological Institute of Great Britain and Ireland; that body being specially and permanently organised for the purpose of advancing the various branches of anthropology; and having many facilities not possessed by a committee, such as a Council which meets regularly and at short intervals during the greater part of the year, is peculiarly well fitted to carry out the necessary arrangements for a thorough revision of the work, and of afterwards bringing it under the notice of those for whom it is intended. The Committee has reason to believe that the Anthropological Institute would be willing to undertake the task and to proceed with the work during the ensuing winter."

They, therefore, ask the Council of the Anthropological Institute whether they are willing to undertake the editing of the new edition of "Anthropological Notes and Queries."

The sum of 50*l.* has been placed at their disposal, which they would hand over to the Council of the Institute if they accept the task, as well as a supplementary sum of 10*l.* contributed as an additional subsidy by Dr. Muirhead.

I am, yours truly,
(Signed) J. G. GARSON,
Secretary of the Committee.

The President of the Anthropological
Institute of Great Britain and Ireland.

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After the reading and discussion of this letter it was resolved on the motion of Mr. Brabrook, seconded by Mr. Atkinson, "That the Council comply with the request of the Committee."

The Council has entered on the work thus entrusted to its care, and a working Committee is at present occupied with the subject.

As the outcome of a discussion on the paper read before the Institute some time ago by Mr. Reginald Stuart Poole, a Committee of the British Association was appointed at Birmingham in 1886, for the purpose of procuring ethnological photographs, &c., from the Egyptian monuments, and it was afterwards arranged that a set of these should be presented to the Institute. Mr. Flinders Petrie very ably carried out this work, and brought home last year a valuable collection of paper squeezes from which excellent plaster casts have been prepared. Some of these were exhibited at the Manchester meeting of the British Association, and subsequently at the South Kensington Museum. It is believed that the collection will find a final resting place in one of our national Museums.[1]

It may be mentioned that the interests of anthropology were well cared for at the last meeting of the British Association. Not only did the Anthropological Section, under Prof. Sayce, with Dr. Garson and Mr. Bloxam as Secretaries, have a successful meeting, but an anthropological laboratory was open daily in connection with this section, at which between two and three hundred individuals were measured.

Among the events of the year bearing upon the work of the Institute mention may be made of the issue of the volume by General Pitt-Rivers, describing his recent extensive excavations near Rushmore. This largely illustrated volume has been privately printed by the author, but has been generously distributed to those who are interested in the archæological branches of anthropological science.

On the motion of Mr. S. E. BOUVERIE-PUSEY, seconded by the Rev. E. S. DEWICK, the Reports of the Treasurer and the Council were adopted.

The following address by the President was then read:—

[1] Members of the Institute may be glad to know that photographs of these casts may be obtained at the mere cost of printing copies, from Mr. Browning Hogg, of High Street, Bromley.

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ADDRESS *delivered at the* ANNIVERSARY MEETING *of the* ANTHROPOLOGICAL INSTITUTE *of* GREAT BRITAIN *and* IRELAND *January 24th*, 1888.

By FRANCIS GALTON, F.R.S., *President.*

ON behalf of this Institute, and sanctioned by their Council, I had the honour of delivering a short course of Lectures in December last, on *Heredity and Nurture*, at the South Kensington Museum. Their object was to test the reality of a supposed demand for information on such subjects, and so far as it was possible to judge from the results, there seemed to be a widely spread interest in the matter. It gives me pleasure to express my obligations to the Lords Commissioners of Education for the free use of their theatre, and to the many officers at South Kensington who aided in the various arrangements. Major Abney and General Festing exhibited in action their beautiful apparatus for testing the colour sense, which was described in the Bakerian Lecture before the Royal Society last year, and at the conclusion of each lecture Dr. Garson, Mr. Rudler, and Mr. Bloxam explained the working of the anthropometric instruments that were laid on side tables. Whether it be feasible for this Society hereafter to promote other lectures bearing on special topics in Heredity and Nurture, is a question on which I do not feel competent as yet to form an opinion, though I have no doubt that hopeful attempts to enlist popular interest in any branch of anthropology will always meet with your approval.

These lectures have led to at least one tangible result. I took the opportunity to reiterate my often expressed regret that no anthropometric laboratory existed in this country, at which children and adults of both sexes could at small cost have their faculties measured by the best methods known to science, and a record kept for their future use. I explained how difficult it would be to maintain such a laboratory, and to make it effective except under the shelter of some important institution, that

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was daily frequented by the class of persons likely to make use of it. Previously, I had applied for permission to erect such a laboratory at the South Kensington Museum, but the difficulties of a suitable position seemed insuperable. Thanks, however, to a recent suggestion of General Donnelly, and with his cordial aid, and also with that of General Festing, a successful application was made to Her Majesty's Commissioners of 1851 for a small portion of the Arcades, rent free, that adjoins the Western Galleries at South Kensington, containing the collection of scientific instruments, wherein to erect a wooden building for the laboratory. It will be connected with and have its only entrance from the gallery. The building has (at the time when I revise these pages) been completed under the obliging superintendence of General Festing, and is opened to the public, though as yet incompletely equipped. I append in a foot note a copy of the printed notice.[1] In one sense it is small, but it offers sufficient accommodation for the purpose immediately in view, which is little more than a development on

[1] Anthropometric laboratory for the measurement in various ways of human form and faculty. Entered from the Western Galleries containing the Science Collection of the South Kensington Museum.

This laboratory is established by Mr. Francis Galton for the following purposes:—

1. For the use of those who desire to be accurately measured in many ways, either to obtain timely warning of remediable faults in development, or to learn their powers.

2. For keeping a methodical register of the principal measurements of each person, of which he may at any future time obtain a copy under reasonable restrictions. His initials and date of birth will be entered in the register, but not his name. The names are indexed in a separate book.

3. For supplying information on the methods, practice, and uses of human measurement.

4. For anthropometric experiment and research, and for obtaining data for statistical discussion.

Charges for making the principal measurements:—Three pence each, to those who are already on the Register. Fourpence each, to those who are not:—One page of the Register will thenceforward be assigned to them, and a few extra measurements will be made, chiefly for future identification.

The Superintendent is charged with the control of the laboratory and with determining in each case, which, if any, of the extra measurements may be made, and under what conditions.

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a more permanent basis of the anthropometric laboratory that I established in the International Health Exhibition of 1884, and at which nearly 10,000 persons were measured. I propose now to preserve copies of the records in such a form that the persons measured may always be able to refer to them so long as the laboratory exists. There will be one page of a folio register book assigned to each person in which the measurements made on successive occasions will be copied on successive lines, to show at a glance the personal development. No names will appear in the registers, but only initials and dates of birth; the names and the mothers' surnames will be entered in a separate book. There will be besides a brief list of questions, both personal and family, which the applicant for measurement will be invited to answer, one of them is whether the parents were first cousins. The copies of the measurements retained in the laboratory will be useful in two ways, the one as statistical documents, and the other as records always accessible under proper restrictions to the persons measured, or to their representatives. I conceive that this arrangement will facilitate the desirable, practice of keeping family records, because so far as members of any family may have been measured, it will be feasible, with their concurrence, to obtain copies of those measurements. I am by no means one of those who desire to confine anthropometry to the simpler physical data, but I wish to extend it as widely as the possibilities of measurements, however rough, may allow. Under judicious statistical treatment, rough measurements of many individuals are capable, as we all know, of yielding trustworthy results, and if we ascertain the degree of precision of our measurements, we can treat them individually on scientific principles, assigning to them their just weight, however small their precision may be. The off-hand measurements that can alone be made of a person who is only a few minutes under experiment, in respect to the delicacy of his senses, and of his reaction-times, are far better than none at all. They will at least serve to indicate such marked peculiarities as may merit more sustained examination.

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The conditions of the laboratory admit only of measurements of the living person and in clothes, and we must make the best of these conditions. It would be undesirable to ask even that the shoes should be taken off. When persons of all ranks and of both sexes are admitted, and many operations have to be gone through in a brief time, it is necessary to measure those persons in their usual indoor clothing. Quite enough can be done under this restriction to furnish a record of the rate of growth and development of the young, and to yield statistical data of considerable value. We can at least record the eye colour; the length, breadth, and possibly the height of head; the stature in shoes less the thickness of the heel, the height above chair when sitting squarely in it, and the height of the knee above the ground; also the spread of the arms from finger tip to finger tip, the length of the middle finger, which is correlated with the length of the foot, and that from finger tip to elbow. These measurements give directly or inferentially the total stature and total arm-spread, and the respective lengths of the trunk and the two leg-bones; also the lengths of the upper and lower arm and of the middle finger. We also can easily and rapidly obtain the lung capacity, strength of squeeze with the right and left hand, keenness of sight with right and left eye, and the colour sense. More delicate apparatus will be at hand to be used occasionally, to test the remaining senses, the psycho-physical reactions, and such other physiological constants as may be found feasible and convenient to measure.

The curious memoir by M. Alphonse Bertillon in the "Annales de Démographie Internationale," republished as a pamphlet in 1881,[1] and the memoirs read at the International Penitentiary Congress at Rome in 1885,[2] by that gentlemen and by M. Louis Herbette, Director of the Penitentiary Department of the Interior,

[1] Une application pratique de l'anthropométrie sur un procédé d'identification, permettant de retrouver le nom d'un récidiviste au moyen de son seul signalement, &c. (G. Masson, Paris, 1881).

[2] "Les Signalements Anthropometriques." Conférence faite au Congrès Pénitentiare International de Rome (G. Masson, Paris, 1886).

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and the very favourable remarks on M. Bertillon's methods by M. Paul Topinard, in the "Revue d'Anthropologie," of 1886, p. 607. and of 1887, p. 379,[1] suggest another use for an anthropometric laboratory. M. Bertillon showed that the various measurements of an individual might afford data of extraordinary value in deciding questions of identity. Ten or a dozen words easily transmissible by telegraph, could give a sufficiently exact description of a man to make it highly improbable that the same words would apply to any other out of many thousands of persons. The immediate object of M. Bertillon's method was to afford means of discovering whether an arrested person had been previously convicted. It is impossible for the French police to make effective search through the vast collection of photographs in their keeping, which is stated to have received an accession of 100,000 in number during the course of 10 years. He, therefore, suggested the plan of indexing prisoners according to their measurements, and this appears to be now done with considerable success. The service over which he presides is well installed and is in full work. The measurements chiefly relied upon were adopted after considerable preliminary experience and consideration in concert with M. Topinard, who speaks of M. Bertillon's method in the first of the passages above referred to, as "an ingenious system which experience has proved to be excellent, which I have seen in work, and have myself practised, and which I declare to answer its purpose perfectly." Independently of this application of anthropometry to rogues, it is clear that it may also be of service to honest men; I cannot do better than extract some phrases from M. Herbette's speech, as published in the French report of the Penitentiary Congress at Rome, already alluded to.

"S'élevant à des considérations d'ordre plus général encore et louant les heureux efforts de M. Bertillon, M. Herbette a montré comment cette constatation de la personnalité physique et de l'indéniable identité des individus arrivés à l'âge d'adulte,

[1] "Une visite à la Préfecture de Police au bureau des signalements anthropométriques" de M. Alphonse Bertillon.

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doit répondre, dans la société moderne, aux besoins les plus réels, aux services les plus variés.

"Qu'il s'agisse de donner par exemple aux habitants d'une contrée, aux soldats d'une armée, aux voyageurs allant dans les pays les plus lointains, des notices ou cartes individuelles, des signes recognitifs permettant de déterminer et de prouver toujours quels ils sont; qu'il s'agisse de compléter par des indications certaines les actes de l'état civil, d'empêcher toute erreur et toute substitution de personnes; qu'il s'agisse de consigner ces marques distinctives de l'individu dans les documents, titres, contrats, où sa personnalité doit être établie pour son intérêt, pour l'intérêt des tiers ou pour l'intérêt de l'État, le mode de signalement anthropométrique peut trouver sa place.

"Qu'il y ait certificat de vie, contrat d'assurance sur la vie ou parfois acte de décès à dresser, qu'il y ait à trouver, à certifier l'identité d'une personne aliénée ou grièvement blessée, ou défigurée, dont le corps aura été en partie détruit, ou sera devenu méconnaissable ou sera difficile à reconnaître, en cas de mort subite ou violente, à la suite d'un crime, d'un accident, d'un naufrage, d'un combat,—quelle ne sera pas l'utilité de tracer ces caractères invariables en chaque individu, infiniment variables d'un individu à l'autre, indélébiles au moins en partie, jusque dans la mort?

"A plus forte raison aurait-on à s'en préoccuper s'il fallait faire reconnaître les gens à longue distance et à une longue durée d'intervalle, après que l'apparence extérieure, la physionomie, les traits et les habitudes physiques ont pu se modifier de façon naturelle ou artificielle, et cela sans déplacement ni frais, par simple échange de quelques notes ou chiffres à envoyer d'un pays à l'autre, d'un continent à l'autre, de manière à savoir aux États-Unis ce qu'est tel homme venu de France, et à établir si tel voyageur que l'on trouve à Rome est bien tel personnage qu'on a mesuré à Stockholm dix ans auparavant.

"En un mot, fixer la personnalité humaine, donner à chaque,

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être humain une identité, une individualité certaine, durable, invariable, toujours reconnaissable, et facilement démontrable, tel semble l'objet le plus large de la méthode nouvelle.

"On peut dire en conséquence que la portée du problème comme l'importance de la solution dépasse de beaucomp les limites de l'œuvre pénitentiaire et l'intérêt pourtant bien considérable de l'action pénale à exercer dans les diverses nations."

Whether all that was claimed for the power of M. Bertillon's system, on purely theoretical grounds and in his earlier publications can be sustained, may fairly be questioned; but there can be no doubt that a series of measurements must be of considerable service as supplementary evidence, either that a person is really the man he professes to be, or negatively that he is not the man for whom he is taken. In speaking of these matters it is impossible not to allude to the Tichborne trial, and the enormous waste of money, effort, and anxiety which might have been spared, had Roger Tichborne passed through an anthropometric laboratory before he went abroad. It would be a reasonable precaution for every person about to leave his country for a long time, having regard to the various accidents of good or ill-fortune, to be properly measured, and to leave a copy of his measurements in the safe keeping of an anthropometric laboratory.

It will doubtless be of interest to many if I should give here the principal details of M. Bertillon's system such as I have learnt partly from published memoirs, and partly from the obliging answers accompanied by useful illustrations that I have received from that gentleman in answer to my inquiries.

All the measurements and other remarks concerning each person are written opposite to printed headings, upon a thick card 5½ inches square. The most convenient primary basis for classifying the cards is found to be not stature, but the head-length and the head-breadth, and in each case under the three-fold division of large, medium, and small. The limiting values of the measurements ranked as medium are so chosen that the number of large, medium, and small measurements shall be

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approximately equal. We thus obtain nine primary classes. Each of these is sub-divided according to a secondary classification of foot-lengths and of the middle finger-lengths of the left foot and left middle finger respectively, and as before under the threefold division of large, medium, and small. Thus there are nine secondary sub-divisions of each of the nine primary classes; that is eighty-one sub-divisions in all, to each of which is allotted a separate compartment in a large cabinet. Each of the cards is sorted into its appropriate compartment. The number of persons at present dealt with is such that there are an average of five hundred cards in each compartment. In each of the eighty-one compartments the cards are again sub-divided into nine tertiary groups by means of attached tickets, that project beyond the upper margin of the cards. They are of three different colours, according to whether the man is of large, medium, or small stature, and they are cut into different shapes, something on the plan of an A B C index, according to whether the person measured has a long, medium, or short arm, reckoning from the elbow to the middle finger tip of the left arm. Thus there are nine times eighty-one, or seven hundred and twenty-nine tertiary groups. There still remains the possibility of further sub-division on the same general principle.

It is found to be a rapid operation to scrutinise individually the small batch of cards to which this process of six successive sub-divisions, each with three categories, directs the search. It is also found that the cases are not so numerous as might be feared in which the nearness of the measurement to limiting values, makes it necessary to extend the search to many compartments, but on this point precise details are as yet wanting. There is also an absence of data from which the frequency of such cases might be theoretically inferred.

It appears to me that the problem of the easiest method of identification by measurements might be usefully furthered, if certain data existed which could be procured with little difficulty. Let us consider what it is with which we have to deal. It is the comparison of two fallible measures of a variable

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subject. The man who measures the subject in the first instance, is liable to error; the subject in the course of months or years is liable to vary; again, the second operator who measures him at the end of the period is liable to error. The data which we want for calculation are the "probable errors" of the two operators, whose compound effect could easily be formulated if they measured, say, a couple of hundred persons consecutively and independently. If there were three operators, A, B, and C, the series of differences between the measurements by A and B, by A and C, and by B and C, would enable us to easily disentangle the probable errors of each. Again we want more definite information than we as yet possess about the variability of the subject, after different intervals of time, and at different ages.

Another, and a very important question, is as to the degree in which the several bodily proportions that are measured may be looked upon as independent variables. The stature is related with the length of the foot, and with that of forearm, and we should expect a still closer relation to exist between any two of these taken together, and the third. We have yet to learn the proportion between the number of the elements measured, and their value for purposes of identification. The supposition that they may be treated as independent variables, which lies at the bottom of some of the earlier estimates, such as that in page 22 of the Conference at Rome, headed "Étendue infinie de la Classification," cannot be accepted as correct.

The whole subject of "Personal Identification and Description" forms an important chapter of anthropological research, and it is one on which I hope before long to be in a position to offer some views of my own.

It was moved by Mr. HYDE CLARKE, seconded by Dr. GARSON, and unanimously resolved:—

> "That the thanks of the meeting be given to the President for his Address, and that it be printed in the Journal of the Institute."

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The Scrutineers gave in their Report and the following gentlemen were declared to be duly elected to serve as Officers and Council for the year 1888:—

President.—Francis Galton, Esq., M.A., F.R.S.

Vice-Presidents.—J. G. Garson, Esq., M.D.; Prof. A. H. Keane, B.A.; F. G. H. Price, Esq., F.S.A.

Secretary.—F. W. Rudler, Esq., F.G.S.

Treasurer.—A. L. Lewis, Esq., F.C.A.

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A vote of thanks to the Treasurer and Secretary for their services during the past year was moved by Mr. G. W. Atkinson, seconded by Dr. Summerhayes, supported by the Rev. H. H. Winwood, and carried unanimously.

Mr. A. L. Lewis moved and Dr. Garson seconded, a vote of thanks to the retiring Vice-President, the retiring Councillors, the Auditors, and the Scrutineers, which was carried by acclamation.

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ANTHROPOLOGICAL MISCELLANEA.

The PRIMITIVE HUMAN HORDE.

I do not think there is much to answer in Mr. Wake's note. His position seems to me insupportable because (1) He takes pains to discuss matters which I do not dispute; (2) He assumes conclusions on my behalf which I do not admit; and (3) He does not appear to accept the doctrine of survival in custom.

(1.) The difference between Mr. McLennan's conception of the horde and mine is fully recognised and emphasized by me. Mr. Wake's observations on the same point are, therefore, superfluous. But because I differ from Mr. McLennan as to the organisation and construction of the horde, does it follow that I supply no evidence in support of Mr. McLennan's theory of the existence of the primitive group or horde? It was no part of Mr. McLennan's task to work out the details of the horde organisation; what he did was to arrive at the "conception" of such an organisation by working back through later stages of society until he came to the horde. Accepting Mr. McLennan's general conclusion, I sought to fill up the outline with some special researches.

(2.) Mr. Wake's method of argument is curious. On p. 279 he "assumes" that the totem organisation of the horde was based upon the same ideas as the gens. This assumption, in the following paragraph, becomes an "important conclusion," from which he is enabled to state that "the totem organisation in the primitive horde would thus require it to have been bound together by the ties of kin," and finally to conclude that totemism and exogamy imply the existence of kinship by blood. I cannot follow the steps in the logic of this singular paragraph; I dispute the "assumption," the "important conclusions," and most of all the final conclusions, and I await Mr. Wake's proofs.

(3.) Mr. Wake considers that, because the Abor tribes have developed some agricultural and other advanced habits, therefore the particular qualities quoted by me are not evidence of "horde" organisation. May I ask him whether he cannot conceive the Abors to have retained some very primitive characteristics during the time they were advancing? He would admit it in the case of the Welsh who retained bride-capture in historical times.

I quite admit that the evidence wants careful weighing, and I thank Mr. Wake for his observations on the tribes I have mentioned. On the question of the Andaman Islanders Mr. Wake pins his faith to Mr. Man's observation. I agree with Mr.

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Featherman's criticisms of Mr. Man; but on this point I can understand Mr. Wake's criticism. But I altogether object to his "assuming" something on my behalf and then demolishing me on the strength of this assumption. Thus, on p. 279, Mr. Wake says the Arab tribe "*may be said* to answer as nearly as possible to Mr. Gomme's horde," and then goes on to disprove the likeness and to speak of "unfortunately for his (*i.e.* Mr. Gomme's) hypothesis." Now I never considered, and do not consider, the Arabs have anything to do with the horde type of society, and I have expressly disclaimed the notion that any modern people could be taken, as a whole, to represent the primitive human horde.

G. Laurence Gomme.

Barnes Common.

Statistics *bearing upon the* Average *and* Typical Student *in* Amherst College, March, 1888.

By Dr. E. Hitchcock, assisted by Dr. H. H. Seelye.

The three columns of figures on the next page are the results of an attempt to learn what are the measures and proportions of *the average student, and the student of mean proportions* in Amherst College as derived from the anthropometric data gathered in the Department of Physical Education and Hygiene.

The first column gives the *averages*—in the several different items—*of all the students* who have been connected with College from 1861–2 up to 1887–8 inclusive.

The second column gives the *averages* of the same items of those students only who were of *the average height of all College*—those whose height was 1,725 millimetres, or 67·9 inches.

The third column is made up in this manner:—Each item is separated into numerical groups—or columns of figures—of a small range—of a few millimetres each, and arranged side by side on a horizontal line, so as to show the relative size of each one to the other, or of the largest to those of middle proportions, and of each of these to the smallest, the top of the columns representing an ascent and descent.

This will give a gradually ascending series from the left or smallest individuals to about the centre of the groups, where the columns will grow shorter and shorter to the right, or to the largest individuals. The central column, or the point between the two columns—if they chance to be two columns of equal numbers—will give *the mean or typical measurement of the item.*

In the item of *Height* for example, we may divide it into groups of 10 millimetres, or about half an inch each, beginning with 1,600 to 1,610 millimetres or 63 inches, and running to 1,830 millimetres, or 72 inches. This will give us 25 groups in all—and each man's height as preserved in the book of records will have been placed in the proper groups.

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When all are gathered together in this manner we have an ascending series from the lowest or smallest measure to a certain point where the series begins to descend to the highest or largest measure. This point—or recorded height—where the greatest number of observations are found, constitutes the "mean" or the central point of all the heights, and is to be regarded as the typical or standard height of all the students. Hence this third column indicates the *student of mean Proportions*, while the other columns indicate the relations of the *Average Student.*

Average and mean anthropometric data of Amherst College Students, March, 1888:—

	Items of Observation.	The average Amherst Student.	The Amherst Student of average Height.	The Amherst Student of "mean" Proportions.
	Weight ... ... *Kilos.*	61·2	61·7	61·5
Heights.	Body ... *Millimetres.*	1725	1725	1720
	Sternum ,,	1410	1408	1410
	Navel ... ,,	1030	1030	1030
	Pubes ... ,,	860	862	860
	Knee ... ,,	476	475	478
	Sitting... ,,	903	902	904
Girths.	Head ... ,,	572	572	568
	Neck ... ,,	349	353	350
	Chest Repose ,,	880	887	890
	Chest Full ,,	927	928	930
	Belly ... ,,	724	724	730
	Hips ... ,,	900	891	900
	Thighs ,,	515	518	515
	Knees ... ,,	355	357	355
	Calves ,,	345	348	345
	Insteps ,,	241	240	240
	B. U. Arm Cont. ,,	295	294	295
	Upper Arms ,,	257	258	255
	Elbows ,,	249	250	248
	Forearms ,,	260	260	262
	Wrists... ,,	161	165	160
Breadths.	Head ... *Millimetres.*	155	153	154
	Neck ... ,,	108	108	109
	Shoulder ,,	430	432	425
	Waist ... ,,	250	254	250
	Hips ... ,,	323	323	325
	Nipples ,,	198	197	200
Lengths.	ShoulderElbows ,,	372	372	370
	Elbow Tips ,,	458	462	460
	Feet ... ,,	260	262	255
	Stretch of Arms ,,	1780	1785	1781
	Horizn. Lengths ,,	1732	1730	1728
Strengths.	Lungs ... *Kilos.*	1·5	1·3	1·5
	Back ... ,,	137	138	135
	Legs ... ,,	166	164	160
	Forearms ,,	39	38	37
	Total ... ,,	454	456	450
	Dip *No. of times.*	6	6	6
	Pull Up ... ,,	9	10	10
	Lung Capacity, *Litres.*	4·11	4·19	4·27
	Pilosity, *Part of the body.*	2·25	2·10	2·25

These are "Metric" measurements, and where the item is taken double—right and left parts—the average of the two is the record.

Distribution *of* Indian Tribes *in* North America.

The United States Geological Survey has nearly ready for publication a map showing the distribution of the Indian tribes on this continent north of Mexico. Including the labour which Major Powell himself and his immediate assistants have expended in the collection, arrangement, and digestion of the material for this map, and that done by the Bureau of Ethnology, it will represent the work of about fifteen years, and will be one of the most

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important and interesting publications ever made by the Geological Survey. All of the Indians living in this country at the time of the white occupation have been divided into linguistic families, and the territory occupied by each one of these families is represented on the map by a distinctive colour. The number of these families is about 60, and the number of separate tribes between 300 and 350.

One of the first and most important facts shown by this map is that the territory occupied by each linguistic family, with few exceptions, is continuous. An important deduction in relation to the habits of the Indians is drawn from this fact,—that instead of being nomadic, and wandering over the continent at will, as has been generally supposed, the Indians had fixed homes, the boundaries of which were almost as plainly marked as the dividing lines between the several States are to-day, and that their wanderings were within limited areas, rarely or never extending beyond these fixed boundaries. The Indians had their permanent villages, in which they lived for five, ten, twenty, or perhaps fifty years. At certain seasons of the year they went to the coast or to the rivers to fish, or to the forest or plains to hunt. The boundaries of the territories occupied by each family were occasionally changed by conquest. A stronger tribe or family would by war push back its weaker neighbours, and thus extend its dominion. But the territory so conquered was recognised by the vanquished, as well as by the victor, as the property of the latter. If the Indians had been nomadic, and wandered over the continent, or over large portions of it, branches of the same linguistic family would have been found scattered broadcast all over the country.

Some of the few exceptions to this general rule of distribution are exceedingly interesting, and throw a light upon the unwritten and even forgotten history of some of the tribes. For instance: a little colony of the great Siouan family is found in Virginia. How it became separated, crossed the mountains, and maintained itself in the midst of another family speaking an entirely different language, suggests a very interesting topic for the study of the ethnologist. Again: all the north-western part of the continent was occupied by the Athabascan family, very peaceable Indians. But the Apaches and Navajos of New Mexico and Arizona belong to the same family, and are among the most warlike on the continent. To their surroundings and the necessity of wresting their new home from its previous occupants and holding it, as well as to the inhospitable character of the country, may not their change of character be attributed? Another little tribe of the Athabascans is found in California.

One of the most degraded families of Indians of North America in the Shoshonean, of which the Diggers are a branch. And yet, strange as it may appear, the Moquis, more advanced toward civilisation than any others of the Pueblo Indians, are Shoshonean.

One exceedingly interesting feature of the map is the great number of little families that lived in California and Oregon. Some

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of these comprise only a few individuals—not more than forty or fifty—and yet their languages are entirely distinct from those spoken by the surrounding tribes. In one instance Mr. Henshaw, who has charge of the construction of the map, found in California a single man, the sole survivor of his tribe. From him enough was learned to preserve the language once spoken by his ancestors, but with his death that tongue becomes extinct.

A very curious fact in relation to the distribution of the Eskimo is that they inhabit the coast of the Arctic regions to the exclusion of other Indians, beginning on the east shore of Greenland, and following the coast-line of that island around to the point farthest north inhabited by man. Then, beginning on the coast on the mainland, they occupy narrow strips on the north shore of Hudson Bay and along the northern coast of the continent, around past Behring Strait, and down the north-west coast of the continent to Prince William's Sound. Throughout all this immense coast-line the differentiation of language is very small; so that an Eskimo from Greenland transported to Behring Strait would in a month be able to speak the language of the natives there as well as though he had been born there. In striking contrast were the numerous distinct families of Indians in the valleys of California and Oregon, whose languages are so different that they could not understand each other.

This map, when published, will be accompanied by a report and discussion of the facts it discloses, and will be a very important contribution to the science of ethnology.—*Science*, March 23rd, 1888, p. 139.

THE LATE MR. MCLENNAN.—A posthumous paper by Mr. J. F. McLennan containing a brief outline of his latest, and as yet unpublished, views of the Origin of Exogamy, appeared in the January number of the "Historical Review." It is supplemented by a short memoir written by his brother.

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